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Siting Wireless Antennas

A n I n t r o d u c t i o n

Federal Land Managers Version

Produced by

CTIA

U.S. Department of Interior
Bureau of Land Management

U.S. Department of Agriculture
United States Forest Service

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Building The
Wireless Future.

CTIA



contents

Table of Contents

Chapter One

Why Are We Here?	7
A Dimensions of the Wireless Market	7
B How Customers use Wireless Services	9
C Legislative and Regulatory Changes Call for Cooperation Between Carriers and Federal Land Managers	12
D Dimensions of Federal land management policies	12

Chapter Two

Wireless Industry Background	25
A Wireless Telephone Systems	25
B Common Characteristics of Wireless Telephone Systems	28
C Cellular History and Topology	30
D PCS History and Topology	32
E ESMR History and Topology	34
F Comparison of Cellular, PCS, and ESMR	35
G Current Industry Commercial Structure	42

Chapter Three

Federal Land Management Agencies Background and Structure	47
A Bureau of Land Management (BLM)	47
B United States Forest Service	49

Chapter Four

The Anatomy of a Wireless System	53
A Theory of Operation	53
B Mobile Switching Center (MSC)	
C The Subscriber Unit	55
D The Cell Site	56

Chapter Five

The Anatomy of a Cell Site	57
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Chapter Six

The Site Selection and Development Process	61
A System Design Drives Site Selection	61
B Factors Driving System Design	62
C Factors Driving Site Selection	63

Chapter Seven

Site Approval and Authorization Process	67
A Pre-Application and Preparation of Materials	67
B Preparation of Materials by Agency	68
C Coordination	69
D Forms Required for Application	70
E Authorization Timetables	71

Chapter Eight

Project Implementation & Construction	73
A Site Construction	73
B Maintenance of and Operational Site	75
C Decommissioning the Site	76

Chapter Nine

Frequently Asked Questions	77
A Why can't the same sites be used?	77
B Why can't all wireless service be provided by satellite	79
C Will this interfere with my TV reception or cause other interference?	80
D What does the public perceive as health risks associated with wireless devices?	80

Appendix

A General Contacts	83
B BLM Contacts	84
C USFS Contacts	85
D Wireless Glossary	105
E Relevant Forms	109

Why Are We Here?

A. Dimensions of the Wireless Market

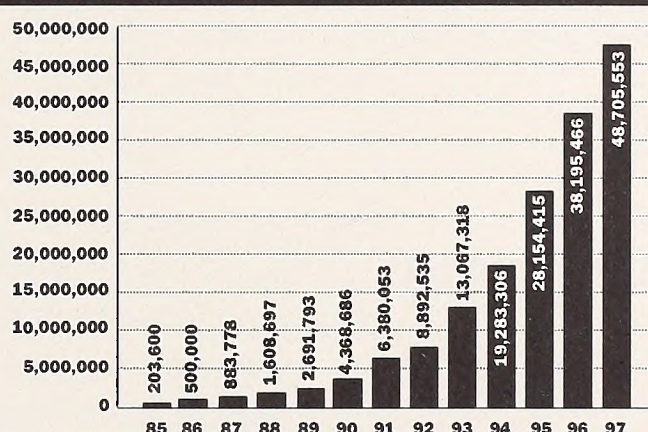
Past, Present and Future Growth

The wireless industry has witnessed incredible growth in its short history as a commercial service. The first statistics compiled by CTIA in late 1984 showed approximately 92,000 subscribers nationally. By the end of 1990, there were just over 5 million subscribers, and from the most recent statistics of mid-year 1997, there are now over 50 million subscribers. To put this in perspective, there are now far more wireless subscribers in the United States than there are people in Canada. The industry has continually posted annual subscribership growth rates of over 30%, and with the recent introduction of Personal Communications Services (PCS), this trend shows no sign of slowing.

Industry “experts” have historically under-predicted the growth of the wireless industry. That said, however, some industry observers are forecasting anywhere from 70 to 80 million subscribers in the United States by the year 2000. This growth is coming from a new set of subscribers. In the past, the typical wireless subscriber was seen as the busy executive whose business might pay the tab. No longer: now, most new subscribers indicate that they will be using their phone for personal use. Furthermore, a large percentage of users subscribe to wireless service solely for safety and security reasons. Finally, the wireless subscriber is becoming increasingly “mobile,” in that subscribers are now purchasing more portable, “pocket” phones than vehicle-installed mobile phones.

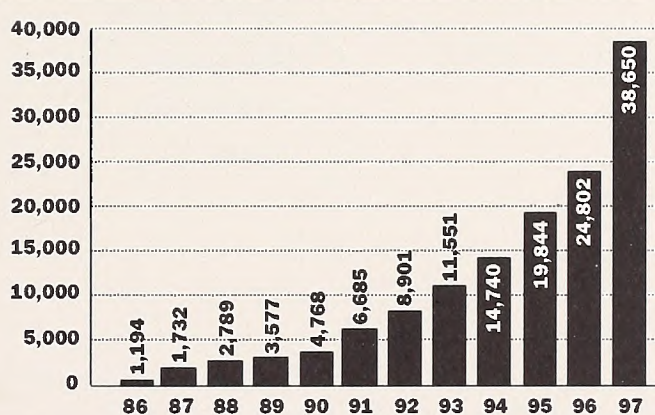
The infrastructure of wireless networks has grown in step with subscribership. By the end of 1990, the wireless industry had invested over \$6 billion in its infrastructure; as of mid-year 1997, cumulative capital investment by the industry stood at over \$37 billion. A great portion of this money goes toward construction of the antenna sites that are the backbone of the wireless network. At the end of 1990, there were approximately 5,600 cell sites in the United States, and most recently, the number of cell sites had risen to over 38,000. Clearly, the surging demand for wireless services has driven the growth in cell site placements.

Wireless Subscribership: June 1985-June 1997

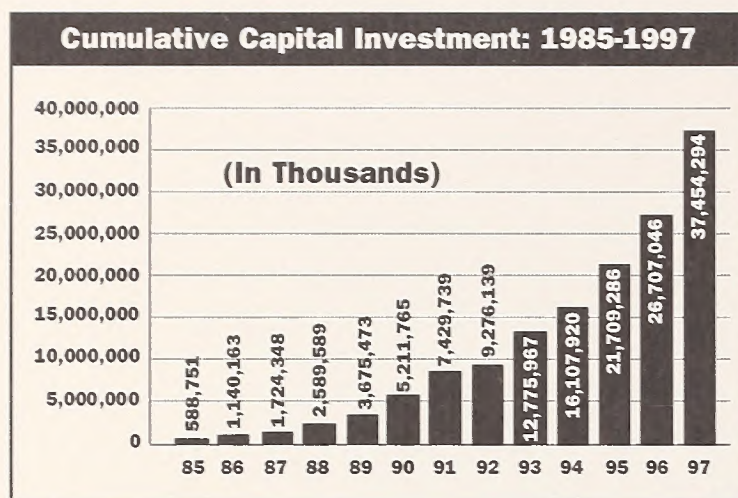


Source: CTIA

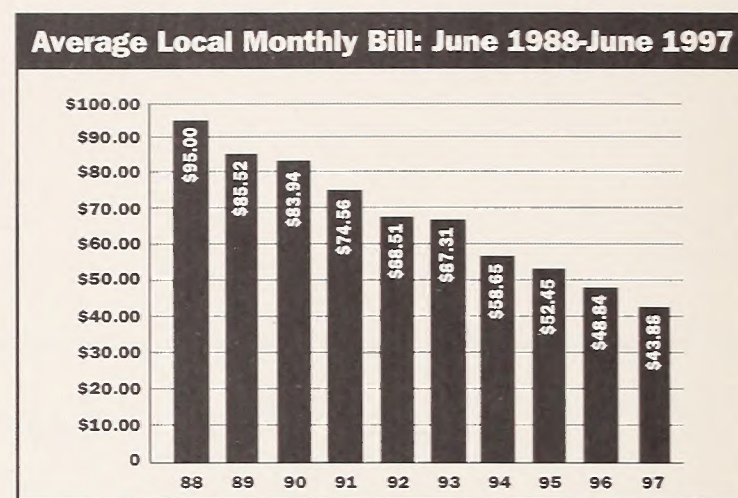
Cell Sites in Commercial Use: June 1986-June 1997



Source: CTIA



Source: CTIA



Source: CTIA

UNITED STATES WIRELESS DEMOGRAPHICS • MARCH 1997

		Cellular Users	PCS Users
GENDER	Male	50%	66%
	Gender Female	50%	34%
AGE	18-34	31%	36%
	35-49	34%	45%
	50 and over	35%	19%
ANNUAL INCOME	Less than \$30,000	16%	14%
	\$30,000-\$50,000	27%	24%
	\$50,000-\$75,000	22%	24%
	More than \$75,000	25%	29%
OCCUPATION	Professional/managers	36%	42%
	White Collar	25%	28%
	Blue Collar	20%	20%
TYPE OF USE	Business	25%	30%
	Personal	58%	49%
	Both	17%	21%

Conducted for CTIA by Peter D. Hart Research Associates

Wireless Local Loop

The future of the wireless marketplace will likely involve non-mobile subscribers. Although wireless networks were initially intended to provide the user with unlimited mobility, wireless technologies can also provide local phone service to fixed locations. Wireless Local Loop (WLL) service is simply a connection to the public telephone network via radio frequencies rather than via traditional copper wires. In many cases, WLL may be the *only* means of reaching a subscriber. It can also provide the telephone customer with an additional choice for local phone service. In the near future, wireless phones may indeed replace wired phones for one's primary telephone service.

Geographic Dimensions of Wireless Service Coverage

During the early years of the industry, wireless companies sought to provide service where their customers traveled, *i.e.* along major roadways. Of course, this level of service was also born of necessity, as the size of the phones limited them to being installed in vehicles. As the industry matured, phones became smaller and more portable, while the service providers expanded coverage areas. In addition to city centers and

major commuting thoroughfares, wireless service is now available in most areas with a minimal concentration of either people or traffic.

Over time, the market realities of wireless service have, at once, both changed and stayed the same. Customers still wish to use their phones in cars, and carriers still provide service where people gather. However, subscribers to wireless service are becoming more demanding. They expect landline-quality service along the roads and in the cities, and they expect their phones to work almost everywhere they go. Most people expect a certain level of service regardless of their location, whether inside a large building, in a sparsely populated rural area or amongst mountainous terrain.

These are the main challenges that the wireless carriers face when designing their coverage areas. Carriers want to assure their customers that they will be able to use their phones wherever and whenever the need arises. Thus, they still seek sites near roads and population centers, although the size of those roads and towns are now smaller. Furthermore, carriers want to provide high-quality service in locales that are merely visited by their customers. These may be vacation spots or other places that are sporadically frequented, such as stadiums or amphitheaters.

The goal of the wireless industry remains providing quality service in all the locations that a customer might bring his phone. These days, that location could be just about anywhere.

B. How Customers Use Wireless Services

Wireless phones are revolutionizing the way Americans live and work. According to a national survey conducted by Peter D. Hart Research Associates, wireless phones allow consumers to live happier, safer, and more productive lives. Security, convenience, efficiency, and “helping others” were listed in the Hart Survey as the top reasons for purchasing a wireless phone.

Safety and Security

Whether it is a broken-down car, inclement weather, or a lurking stranger, wireless devices can be extremely helpful. Help is only a phone call away. Drivers, joggers, hikers and boaters, to name a few, take phones with them in case of an emergency. Additionally, other security applications use wireless technology. Alarm systems use wireless networks to backup the traditional landline telephone networks in case of power failure or severed phone lines.

Convenience and Efficiency

In rural America, residents use wireless devices while covering the great distances and remoteness of their areas. Rural businesses make extensive use of wireless services. One major application is agribusiness: in areas that use center-pivot irrigation monitoring, a farmer can start, stop, change directions and perform other irrigation control functions without ever leaving his office, vehicle or wherever he happens to be with his wireless phone, thus saving time and money. Grape farmers in Michigan also use wireless services. They use the technology to balance their harvesting efforts with their sales orders for maximum crop yields and minimal spoilage losses by calling the vineyards when sales orders have been filled. In other regions, oil and gas well-head monitoring is an important wireless application. Wireless technology enables companies to optimize the output of the well, as well as provide alarm notification for contingencies such as ruptured valves. Rural areas also use wireless services for transportation concerns. Remote highway monitoring stations monitor vital traffic data and also sense pavement temperatures and road conditions to alert trucks and snow plows of seasonal road repairs.

Rural areas are not alone in using wireless technology to improve business. Where feasible, commuters take advantage of travel time by taking care of business on the road. For those who commute by ferry in Lake Michigan, for instance, wireless laptops and phones are an efficient way to stay in touch with colleagues and conduct business.

Improving Education

The CTIA Foundation funds the installation of ClassLink wireless telecommunications systems in schools across the country. In the U.S., more than 90 percent of all classrooms do not have a phone. ClassLink enables teachers and students to take the learning process beyond traditional classroom walls. By placing a wireless phone in the classroom, students and teachers can call parents, principals and other staff for prompt requests and conferences. ClassLink also gives students access to the educational and cultural resources of the Internet in their classrooms via wireless modems.

Health Care

Ambulance drivers and doctors in the field can keep in touch with hospitals by using wireless phones and laptops. This enables the quick and timely exchange of vital statistics, patient records, consultations, and prescription data, resulting in better treatment. Wireless devices are also used in the hospital. Those used by nurses increase efficiency to such an extent that patient hospital stays were shorter as a result of receiving more rapid care. For example, one hospital equipped its operating room preparations staff with wireless phones. The staff reported that preparation time for each operating room was reduced by approximately six minutes, allowing the hospital to perform an additional 600 procedures each year with the same facilities.

One such program has gained national attention. The CTIA Foundation's laptop computers — equipped with wireless modems and donated airtime — give visiting nurses at the Columbia Presbyterian Medical Center a new weapon in the resurgent battle against tuberculosis. While making house calls on TB patients unable to visit clinics, the nurses maintain instant three-way communications with the hospital and the New York City Department of Health. This project, "Applied Informatics" at Columbia-Presbyterian, has received the National Information Infrastructure (NII) Award for health care. The National Information Infrastructure Awards are designed to help the global community realize the potential of a networked society by recognizing best practices and examples of excellence and helping others understand and learn from those examples.

Helping Others

Each year the wireless industry presents awards to the nation's most compelling wireless Samaritans. These awards include *highway heroes* (those who use wireless phones to report a collision, drunk driver, "hit-and-run," or other traffic-related emergencies), *good Samaritans* (those who go to extraordinary lengths to provide assistance during a life-threatening situation), *crime stoppers* (those who use wireless phones to stop or to report a crime) and *lifesavers* (those who save a life through use of a wireless phone). Community service is another useful application. Programs for domestic violence and neighborhood crime are helping people all over the country. In July 1996, the CTIA Foundation — along with a Presidential initiative to crack down on crime — committed to donate wireless phones and free airtime to help establish a national crime-fighting effort called Communities on Phone Patrol (COPP). This program mobilizes citizen volunteers for neighborhood patrol groups equipped with wireless phones.

Wireless carriers also provide assistance in times of emergency by donating wireless phones and service. These donations have proven invaluable during hurricanes, forest fires, earthquakes, and other disasters like the 1995 Oklahoma City bombing. During natural disasters, landline phone systems may be unavailable, and wireless technology is essential in helping emergency workers do their jobs. Similarly, wireless phones play a vital role in providing communication for the victims of a natural disaster, for example, to let their families know that they are safe or to get medical treatment.

Wireless Local Loop

The future of the wireless marketplace will likely involve non-mobile subscribers. Although wireless networks were initially intended to provide the user with unlimited mobility, wireless technologies can also provide local phone service to fixed locations. Wireless Local Loop (WLL) service is simply a connection to the public telephone network via radio frequencies rather than via traditional copper wires. In the near future, wireless phones may replace wired phones for one's primary telephone service.

Deploying wired systems involves lengthy planning and analysis of future market trends and capacity demands. Wireless systems, on the other hand, are much more flexible. They can be quickly deployed and can be easily reconfigured to handle service in high-growth areas. That is, broad subscriber coverage can be realized without direct connections (*i.e.*, wires) to each subscriber. This is the very essence of wireless communications: the ability to reach numerous subscribers from one central point.

A wireless system has additional advantages that allow it to serve certain local exchange customers better than a wired network. In rural areas, for example, the landscape and terrain often preclude wiring customers; mountains, forests, vast distances and limited resources restrict the viability of laying a wire to a customer's premises. Furthermore, wireless systems can minimize the disruption of landscapes, soil and viewsheds better than wired systems. In urban areas, wireless networks can also provide advantages over deploying wired networks. Installing wired networks involves tearing up streets and drilling through buildings to route wires through the existing urban landscape. Securing these rights-of-way not only involves negotiating with the relevant municipalities, it implies that everyday life will be disrupted — particularly if asbestos is present in the existing buildings. Wireless systems avoid these problems and, as a result, are capable of delivering quick service to customers.

Through its auctions of PCS spectrum, the FCC has taken a step toward promoting Wireless Local Loop services in the United States. PCS is a technology well-suited to provide WLL services, given its digital nature, its place on the spectrum, and the division of different auction "blocks" of spectrum. While the A and B Block PCS licensees may look first at providing "next-generation" cellular service, many C, D, E, and F Block providers have included WLL service as a core part of their business plans. A 10 MHz block of spectrum in a rural market gives a provider the flexibility to offer both mobile and fixed services. Mobile services may be the focus along the major roads through the market, while in other locations, the spectrum may be used for fixed services. Additionally, several A and B Block licensees have created alliances with rural companies to ensure the deployment of PCS at the outer reaches of the urban centers in their license area. These alliances will allow those rural companies to focus not only on filling out their partners' markets, but at the same time, they will be able to deploy WLL systems where the two seemingly divergent applications actually converge. For example, Shenandoah Mobile Company (Shentel) is building out the western Virginia portion of American Personal Communications' Washington-Baltimore market. In other words, a rural company may build its networks to serve mobile customers, but in doing so, it is also building the foundation for WLL systems.

C. Legislative and regulatory changes call for cooperation between carriers and Federal land managers

Until recently, the wireless marketplace was served by two cellular carriers. As demand surged through the late 1980's and early 1990's, both Congress and the FCC recognized the need to make available more spectrum — the airwave frequencies over which wireless radio signals travel — to meet the rising demand. Congress mandated that the FCC raise money for the Federal Treasury by auctioning spectrum licenses. After several years of passed laws, rulemakings and other initiatives, the wireless market now holds the potential for up to nine carriers. These new market realities translate into an increasing demand for wireless antenna sites.

There have been recent initiatives that have further changed the relationship wireless carriers have with Federal land managers. On August 10, 1995, President Clinton signed an Executive Memorandum directing the heads of all departments and agencies to facilitate access to Federal properties. As a result, the General Services Administration (GSA), in coordination with other agencies and the wireless industry, developed a set of procedures to facilitate the siting of wireless antenna sites. Then, in February, 1996, President Clinton signed the Telecommunications Act of 1996; Section 704(c) of the Act codified this directive.

D. Dimensions of Federal land management policies

The Bureau of Land Management and the United States Forest Service derive their policies for siting wireless antennas from the Executive Memorandum, Section 704(c) of the Telecommunications Act, and the GSA guidelines published in the Federal Register June 16, 1997. Copies of those documents appear here. The policies of specific Federal agencies (BLM, USFS) are examined in Chapters 3, 6, and 7 of this manual.

THE WHITE HOUSE
Office of the Press Secretary

August 10, 1995

For Immediate Release

August 10, 1995

MEMORANDUM FOR THE HEADS OF DEPARTMENTS AND AGENCIES

SUBJECT: Facilitating Access to Federal Property for the Siting of Mobile Services Antennas

Recent advancements in mobile telecommunications technology present an opportunity for the rapid construction of the Nation's wireless communications infrastructure. As a matter of policy, the Federal Government shall encourage the efficient and timely implementation of such new technologies and the concomitant infrastructure buildout as a means of stimulating economic growth and creating new jobs. The recent auctioning and impending licensing of radio frequencies for mobile personal communications services presents the Federal Government with the opportunity to foster new technologies and to encourage the development of communications infrastructure by making Federal property available for the siting of mobile services antennas.

Therefore, to the extent permitted by law, I hereby direct the Administrator of General Services, within 90 days, in consultation with the Secretaries of Agriculture, Interior, Defense, and the heads of such other agencies as the Administrator may determine, to develop procedures necessary to facilitate appropriate access to Federal property for the siting of mobile services antennas.

The procedures should be developed in accordance with the following:

1. (a) Upon request, and to the extent permitted by law and where practicable, executive departments and agencies shall make available Federal Government buildings and lands for the siting of mobile service antennas. This should be done in accordance with Federal, State, and local laws and regulations, and consistent with national security concerns (including minimizing mutual electromagnetic interactions), public health and safety concerns, environmental and aesthetic concerns, preservation of historic buildings and monuments, protection of natural and cultural resources, protection of national park and wilderness values, protection of National Wildlife Refuge systems, and subject to any Federal requirements promulgated by the agency managing the facility and the Federal Communications Commission, the Federal Aviation Administration, National Telecommunications and Information Administration, and other relevant departments and agencies.
- (b) Antennas on Federal buildings or land may not contain any advertising.
- (c) Federal property does not include lands held by the United States in trust for individual or Native American tribal governments.
- (d) Agencies shall retain discretion to reject inappropriate siting requests, and assure adequate protection of public property and timely removal of equipment and structures at the end of service.
2. All procedures and mechanisms adopted regarding access to Federal property shall be clear and simple so as to facilitate the efficient and rapid buildout of the national wireless communications infrastructure.
3. Unless otherwise prohibited by or inconsistent with Federal law, agencies shall charge fees based on market value for siting antennas on Federal property, and may use competitive procedures if not all applicants can be accommodated.

This memorandum does not give the siting of mobile services antennas priority over other authorized uses of Federal buildings or land.

All independent regulatory commissions and agencies are requested to comply with the provisions of this memorandum.

This memorandum is not intended to create any right, benefit or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies or instrumentalities, its officers, or any other person.

This memorandum shall be published in the Federal Register.

WILLIAM J. CLINTON

#

Telecommunications Act of 1996

P.L. 104-104, Approved February 8, 1996
(Excerpt)

SEC. 704. FACILITIES SITING; RADIO FREQUENCY EMISSION STANDARDS.

- (a) NATIONAL WIRELESS TELECOMMUNICATIONS SITING POLICY.— Chapter 332(c) (47 U.S.C. 332(c)) is amended by adding at the end the following new paragraph:

(7) PRESERVATION OF LOCAL ZONING AUTHORITY.—

(A) General authority.—Except as provided in this paragraph, nothing in this Act shall limit or affect the authority of a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of personal wireless service facilities.

(B) LIMITATIONS.—

(i) The regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof—

(I) shall not unreasonably discriminate among providers of functionally equivalent services; and

(II) shall not prohibit or have the effect of prohibiting the provision of personal wireless services.

(ii) A State or local government or instrumentality thereof shall act on any request for authorization to place, construct, or modify personal wireless service facilities within a reasonable period of time after the request is duly filed with such government or instrumentality, taking into account the nature and scope of such request.

(iii) Any decision by a State or local government or instrumentality thereof to deny a request to place, construct, or modify personal wireless service facilities shall be in writing and supported by substantial evidence contained in a written record.

(iv) No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions.

(v) Any person adversely affected by any final action or failure to act by a State or local government or any instrumentality thereof that is inconsistent with this subparagraph may, within 30 days after such action or failure to act, commence an action in any court of competent jurisdiction. The court shall hear and decide such action on an expedited basis. Any person adversely affected by an act or failure to act by a State or local government or any instrumentality thereof that is inconsistent with clause (iv) may petition the Commission for relief.

(C) DEFINITIONS.—For purposes of this paragraph—

(i) the term 'personal wireless services' means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services;

(ii) the term 'personal wireless service facilities' means facilities for the provision of personal wireless services; and

(iii) the term 'unlicensed wireless service' means the offering of telecommunications services using duly authorized devices which do not require individual licenses, but does not mean the provision of direct-to-home satellite services (as defined in chapter 303(v)).

(b) RADIO FREQUENCY EMISSIONS.—Within 180 days after the enactment of this Act, the Commission shall complete action in ET Docket 93-62 to prescribe and make effective rules regarding the environmental effects of radio frequency emissions.

(c) AVAILABILITY OF PROPERTY.—*Within 180 days of the enactment of this Act, the President or his designee shall prescribe procedures by which Federal departments and agencies may make available on a fair, reasonable, and nondiscriminatory basis, property, rights-of-way, and easements under their control for the placement of new telecommunications services that are dependent, in whole or in part, upon the utilization of Federal spectrum rights for the transmission or reception of such services. These procedures may establish a presumption that requests for the use of property, rights-of-way, and easements by duly authorized providers should be granted absent unavoidable direct conflict with the department or agency's mission, or the current or planned use of the property, rights-of-way, and easements in question. Reasonable fees may be charged to providers of such telecommunications services for use of property, rights-of-way, and easements. The Commission shall provide technical support to States to encourage them to make property, rights-of-way, and easements under their jurisdiction available for such purposes.*

General Services Administration

[GSA Bulletin FPMR D-242]

Placement of Commercial Antennas on Federal Property

AGENCY: Office of Governmentwide Policy, GSA

ACTION: Notice of bulletin.

SUMMARY: The attached bulletin provides all Federal agencies with the general guidelines and processes for implementation of President Clinton's memorandum of August 10, 1995, entitled "Facilitating Access to Federal Property for the Siting of Mobile Services," and chapter 704(c) of the Telecommunications Act of 1996, Public Law 104-104.

EFFECTIVE DATE: June 11, 1997.

FOR FURTHER INFORMATION

CONTACT: Stanley C. Langfeld, Director, Real Property Policy, 202-501-1737
(stanley.langfeld@gsa.gov).

SUPPLEMENTARY INFORMATION:

GSA Bulletin FPMR D-242; Public Buildings and Space

To: Heads of Federal agencies

Subject: Placement of commercial antennas on Federal property

- 1. Purpose.** This bulletin provides all Federal agencies with the general guidelines and processes for implementation of President Clinton's memorandum of August 10, 1995, entitled "Facilitating Access to Federal Property for the Siting of Mobile Services Antennas", and chapter 704(c) of the Telecommunications Act of 1996, Public Law 104- 104 (47 U.S.C. Sec. 332 note).
- 2. Expiration.** This bulletin expires June 30, 1999, unless sooner canceled or revised.
- 3. Background.**
 - a.** On August 10, 1995, President Clinton signed a memorandum directing the Administrator of General Services, in consultation with the heads of other Federal agencies, to develop procedures necessary to facilitate access to Federal property for the siting of "mobile services antennas" (telecommunications service provider equipment).
 - b.** On February 8, 1996, the President approved the Telecommunications Act of 1996, which included a provision for making Federal property available for placement of telecommunications equipment by duly authorized providers.
 - c.** On March 29, 1996, GSA published a Notice in the Federal Register outlining the guiding principles and actions necessary for Federal agencies to implement the antenna siting program promulgated by the Presidential memorandum and the Telecommunications Act of 1996.
 - d.** In response to inquiries from the wireless telecommunications industry regarding the Federal Government's progress in this program, GSA's Office of Governmentwide Policy (OGP) held three Antenna Siting Forums: March 5, 1997, for Federal agencies; March 19, 1997, for the wireless telecommunications industry; and a joint forum on April 15, 1997.
 - e.** A fact-finding working group comprised of industry and Federal agency representatives was estab-

lished and met to discuss the issues raised during the initial two forums. These issues are:

- (1) Development of a uniform evaluation process, including timely response and an appeals process, to facilitate and explain the basic application process;
- (2) Site pricing to enable Federal agencies to retain flexibility in establishing the antenna rates;
- (3) Site competition to provide timely response to requests and, where feasible, encourage industry collocation;
- (4) Fee reimbursement to provide payment to the Federal Government for services and resources provided as part of the siting request review process;
- (5) Site security, access, and rights-of-way to identify roles and responsibilities of both the Federal Government and the wireless telecommunications service provider; and
- (6) Site request denial tracking to enable GSA and the wireless telecommunications industry to track antenna requests and denials.

- f. GSA subsequently identified environmental and historic resource implications as issues to be considered by the working group and these issues are addressed in this document.
- g. This collaborative effort, along with further meetings and discussions, has resulted in a better understanding of processes and procedures between the wireless telecommunications industry and the Federal agencies.
- h. The development of the following enhanced guidelines and procedures will further efforts for a more cooperative partnership between the Federal Government and the wireless telecommunications industry and continue to facilitate the implementation of the requirements of section 704(c) of the Telecommunications Act of 1996.

4. **Action.** The following guidelines and procedures should be followed by all Executive departments and agencies. In addition, all independent regulatory commissions and agencies are also requested to comply with the following:

- a. **Determining impact to controlled property.** Each Executive department and agency which controls and operates real property, rights-of-way or easements to property under specific statutory authority is responsible individually for determining the extent and programmatic impact of placing commercially owned antennas on their properties.
- b. **Review of internal agency rules.** Each Executive department and agency should review their rules, policies and procedures for allowing commercial use of their properties and modify them as necessary to assure they fully support the siting of commercial telecommunications service antennas as provided in these procedures.
- c. **Dissemination of antenna guidelines.** Each Executive department and agency should ensure that the appropriate officials within their national, regional, and local offices who are responsible for the siting of commercial telecommunications service antennas comply with the requirements and policies prescribed by the Telecommunications Act of 1996, concerning property, rights-of-way and easements under their agency's control, and comply with the President's memorandum on facilitating access to Federal property.
- d. **Preliminary response to siting request.** Each Executive department and agency should provide at least a preliminary written response to any antenna siting request no later than 60 days after receipt of the request. This response should be sent after performing an initial evaluation of the request.
- e. **Open communications.** Each Executive department and agency should maintain open communications with the requesting wireless telecommunications provider. Communication is critical once a siting request has been submitted and should be maintained throughout the term of the working relationship.

f. Points of contact. Each Executive department and agency should, upon request, provide firms and individuals the owner agency's point of contact for placing commercial telecommunications service antennas on Federal properties. Generally, Federal buildings and courthouses are controlled by the General Services Administration; military posts and bases, by the Department of Defense; Veterans hospitals and clinics, by the Department of Veterans Affairs; and open land areas including National Parks, National Forests and other public lands by the Department of the Interior or the Department of Agriculture.

g. Headquarters points of contact. Attachment A is a listing of the agency contact points in the headquarters of Federal real property holding departments and agencies. Anyone interested in placing antennas on specific Federally-owned properties should contact the appropriate agency official.

h. Information required. Telecommunications services providers should specifically identify the Federal property and provide the basic information described in Attachment B (Uniform Review Process). Federal agencies should advise the applicants of any specific application procedures, and provide the name of the local site/facility manager to coordinate determination of site suitability as well as the term and instrument (e. g., lease, permit, license) required to complete the siting project.

i. Assistance in determining property ownership. In instances where the identity of the department or agency which has the custody and control of the property is unknown, the GSA/OGP Office of Real Property should be contacted. This office maintains a listing of all properties owned by the Federal Government world-wide and will assist in the identification of these properties. This office may be reached at (202) 501-0176, or by writing to the Office of Real Property (MP), Room 6233, General Services Administration, 1800 F Street, NW, Washington, DC 20405. To assist in identifying the appropriate Federal department or agency, inquiries should include the state, city/county, building/ property name and mailing address of the property in question.

5. Applicability. These guidelines are applicable to Executive departments and agencies for antenna siting requests for rooftops, open land or other requests for access under this program. These guidelines are not intended to apply to lands held by the United States in trust for individual or Native American tribal governments. In order to facilitate compliance with the Telecommunications Act of 1996, the following principles should be used in evaluating requests for antenna siting access:

a. Property availability. Upon request, and to the extent permitted by law and to the extent practicable, Executive departments and agencies may make available Federal Government buildings and lands for the siting of telecommunications service antennas. This should be done in accordance with Federal, State and local laws and regulations, and consistent with national security concerns. Care should be exercised to avoid electromagnetic intermodulations and interferences. The evaluation of the siting request will include consideration of environmental and historic preservation issues including, but not limited to:

- (1) Public health and safety with respect to the antenna installation and maintenance;
- (2) Aesthetics;
- (3) Effects on historic districts, sites, buildings, monuments, structures, or other objects pursuant to the National Historic Preservation Act and implementing regulations;
- (4) Protection of natural and cultural resources (e.g., National Parks and Wilderness areas, National Wildlife Refuge systems);
- (5) Compliance with the appropriate level of review and documentation as necessary under the National Environmental Policy Act and implementing regulations of each Federal

department and agency responsible for the antenna siting project, and the Federal Aviation Administration, the National Telecommunications and Information Administration, and other relevant departments and agencies; and

- (6) Compliance with the Federal Communications Commission's (FCC) guidelines for radio frequency exposure (ET Docket No. 93-62 titled "Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation", issued August 1, 1996, and any other order on reconsideration relating to radio frequency guidelines and their enforcement). These are updated guidelines for meeting health concerns that reflect the latest scientific knowledge in this area, and are supported by Federal health and safety agencies such as the Environmental Protection Agency and the Food and Drug Administration.

b. Site evaluation. The evaluation of any siting request will also be subject to any requirements of the Federal agency managing the facility, FCC, Federal Aviation Administration, National Telecommunications and Information Administration, and other relevant departments and agencies. In addition, the National Capital Planning Commission should be consulted for siting requests within the Washington, D.C. metropolitan area.

c. Granting siting requests. Requests for the use of property, rights-of-way, and easements by duly authorized telecommunications service providers should be granted unless there are unavoidable conflicts with the department's or agency's mission, or current or planned use of the property or access to that property. A denial of a siting request based on these criteria should be fully explained in writing as noted in d. below.

d. Agency discretion for site denial. Executive departments and agencies shall retain discretion to reject inappropriate siting requests and assure adequate protection of public property. In cases where the antenna siting request has been denied, Executive departments and agencies should allow the service provider to appeal the decision to a higher level of agency authority for review. Written denial of a siting request should be fully explained, and should advise the service provider of the name and mailing address of the appropriate agency official to whom the appeal should be sent.

e. Site access. All procedures and mechanisms adopted by Executive departments and agencies regarding access to Federal property should be clear and simple so as to facilitate the efficient build-out of the national wireless communications infrastructure. Obtaining rights of access to Federal properties through non-Federal lands is the responsibility of the telecommunications service provider.

f. Costs for services. The telecommunications service provider is responsible for any reasonable costs to Federal agencies associated with providing access to antenna sites, including obtaining appropriate clearance of provider personnel for access to buildings or land deemed to be security sensitive as is done with service contractor personnel. OMB Circular A-25, titled "User Charges", revised July 8, 1993, established guidelines for agencies to assess fees for Government services and for the sale or use of Government property or resources.

g. Site fees. Pursuant to the Telecommunications Act of 1996, agencies are authorized to charge reasonable fees for antenna sites on Federal property. In accordance with the President's memorandum, Executive departments and agencies should charge fees based on market value. Fee determination can be based on appraisal, use of set rate schedules, or other reasonable means of value determination.

h. Site requests. Executive departments and agencies will make antenna sites available on a fair, reasonable, and nondiscriminatory basis. Collocation of antennas should be encouraged where there are multiple antenna siting requests for the same location. In cases where this is not feasible and space availability precludes accommodating all antenna siting applicants, competitive procedures may be used.

- i. Priority for siting antennas.** The siting of telecommunications service provider antennas should not be given priority over other authorized uses of Federal buildings or land.
- j. Advertising prohibition.** Antenna structures on Federal property may not contain any advertising.
- k. Equipment removal.** Terms and provisions of the lease, permit, license, or other legal instrument used should assure the timely removal or transfer of ownership of equipment and structures by the service provider. Unless otherwise expressly provided for, removal of such equipment and structures should be at the sole expense of the telecommunications service providers.
- l. Review process.** In order to provide further guidance to those Federal agencies which are unfamiliar with the siting request application process, Attachment B, Uniform Review Process, provides additional processing information to assist in the antenna siting request review.
- m. One-time reporting.** In order for GSA to ascertain the effectiveness and efficiency of these enhanced implementing guidelines and the uniform review process, all Executive departments and agencies receiving antenna siting requests within 6 months of publication of this document should provide GSA with a one-time summary report to indicate the number of siting requests received, approved, completed and denied during that time period. For those requests which are not approved, a narrative statement or copy of the formal written denial is requested to support your decision. This summary information should be received no later than 30 days after the end of the 6-month reporting period.
- n. Reporting office.** Reports should be sent to the GSA, OGP, Office of Real Property Policy (MP), 1800 F Street, NW, Room 6223, Washington, DC 20405.
- o. Information.** Further information regarding this bulletin may be obtained by contacting, Mr. Stanley C. Langfeld, Director, Real Property Policy on (202) 501-1737.

Dated: June 11, 1997.

G. Martin Wagner,

Associate Administrator for Governmentwide Policy.

**Attachment A—
Agency Contact Points for the Placement
of Antennas on Federal Buildings**

Bonneville Power Administration

Office of General Counsel
905 Northeast 11th Avenue
Portland, OR 97232
(503) 230-5904

Federal Communications Commission

Operations Management and Service Division
(1110B)
1919 M St., NW, Room 404
Washington, DC 50554
(202) 418-1950

**National Academy of Science,
National Research Council**

2101 Constitution Ave., NW, Mail Stop (HA-274)
Washington, DC 20418
(202) 334-3384

National Aeronautics & Space Administration

Facilities Engineering Division
NASA Headquarters, Code JX
300 E Street, SW, Washington, DC 20546-0001
(202) 358-1090

**National Archives & Records
Administration (NAFM)**

8601 Adelphi Road, Room 2320
College Park, MD 20740-6001
(301) 713-6470

National Science Foundation

Property Administrator
4201 Wilson Blvd., Room 295
Arlington, VA 22230
(703) 306-1123

Tennessee Valley Authority

Facilities Services—Asset Management
1101 Market Street, Mail Stop: (WR4A-C)
Chattanooga, TN 37402-2801
(423) 751-2127

U.S. Army Corps of Engineers

Management and Disposal Division
in the Real Estate Directorate
20 Massachusetts Ave., NW, Room 4224
Washington, DC 20314-1000
(202) 761-0511

U.S. Department of Agriculture

Property Management Division, AG Box 9840
Washington, DC 20250
(202) 720-5225

U.S. Department of Commerce

Office of Real Estate
14th & Constitution Ave., NW, Room 1040
Washington, DC 20230
(202) 482-3580

U.S. Department of Defense

*(Commercial companies who wish to place
antennas on DOD property should first
contact that property's Installation Commander.
If unknown, please contact the following office):*
Deputy Assistant Secretary of Defense
(Installations)
Attention: Director, Installations Management
3300 Defense Pentagon
Washington, DC 20301-3340
(703) 604-4616

U.S. Department of Education

Office of the Director for Management
600 Independence Ave., SW, Room 2164
Washington, DC 20202
(202) 401-0470

U.S. Department of Energy

Engineering & Space Management Branch
1000 Independence Ave., SW
Mail Stop: HR211, Room 1F-039,
Washington, DC 20585
(202) 586-1557

U.S. Department of Health & Human Services

Division of Policy Coordination
300 Independence Ave., SW, Room 421
Washington, DC 20201
(202) 619-2018

U.S. Department of Interior

Bureau of Land Management
1849 C Street, NW, Room 1000-LS
Washington, DC 20240-9998
(202) 452-7777

U.S. Department of Interior

National Park Service
Radio Frequency Manager, Field Operations
12795 W. Alameda Parkway, P.O. Box 25287
Denver, CO 80225-0287
(303) 969-2084

U.S. Department of Justice

Real Property Management Services
Suite 1060, National Place Building
Washington, DC 20530
(202) 616-2266

U.S. Department of Labor

Office of Facility Management
200 Constitution Ave., NW,
Room S 1521/OFM
Washington, DC 20210
(202) 219-6434

U.S. Department of State

Office of Real Property
2201 C Street, NW, Room 1878
Washington, DC 20520
(202) 647-2810

U.S. Department of Transportation

Office of the Secretary
400 7th Street, SW, Mail Stop: M72,
Room 2318
Washington, DC 20590
(202) 366-9724

U.S. Department of Treasury

Office of Real and Personal Property
Management
Office of the Deputy Assistant Secretary for
Departmental Finance and Management
1500 Pennsylvania Ave., NW,
Room 6140—ANX
Washington, DC 20220
(202) 622-0500

U.S. Department of Veterans Affairs

Land Management Service
811 Vermont Ave., NW, Mail Stop: 184A
Washington, DC 20005
(202) 565-5026

U.S. Environmental Protection Agency

Architecture, Engineering and Real Estate Branch
Facilities Management and Services Division
401 M Street, SW, Room 3204
Washington, DC 20460
(202) 260-2160

U.S. General Services Administration

*Commercial companies who wish to place
antennas on GSA property should first contact the
appropriate Regional Office of the Public Buildings
Service. If unknown, please contact:*
Public Buildings Service
1800 F St., NW
Washington, DC 20405
(202) 501-1100

U.S. Government Printing Office

Office of Administrative Support
710 North Capitol St., NW, Mail Stop: OA
Washington, DC 20401-0501
(202) 512-1074

U.S. Information Agency

Office of Administration—B/A, Cohen Building
330 Independence Ave., SW
Washington, DC 20547
(202) 619-3988

U.S. Postal Service

Realty Asset Management
475 L'Enfant Plaza West, SW
Washington, DC 20260-6433
(202) 268-5765

Attachment B—Uniform Review Process

The following information may be used as a guide by Federal agencies upon receipt of an antenna siting request. This uniform review process is intended to assist those Federal agencies who are unfamiliar with the review and evaluation of antenna siting proposals. This guidance has been developed based on input from several Federal agencies who have had extensive experience in working with the wireless communications industry and antenna siting requests for both rooftop and open land installations.

a. Siting request review. Federal agencies should review the siting request and ensure that sufficient basic evaluation information is provided. This basic information should include the following:

- (1)** Name, address and telephone number of applicant and authorized or legal representative for the project;
- (2)** Specific building name and address, or as appropriate, latitude and longitude or other site specific property identifier;
- (3)** Type and size of antenna installation and support required for the service provider's proposed wireless site including access to site, utility requirements, acreage of land or ft/lb capacity for rooftops, etc.). In cases where the proposed site is to be located on an established building or wireless facility, any special modification requirements unique to the service provider's proposal must be clearly identified;
- (4)** FCC license number (if a licensed facility), summary of antenna specifications including frequencies;
- (5)** Proposed term of requirement;
- (6)** Terms of removal of equipment and structures or property restoration;
- (7)** Description of project or larger antenna installation program, if applicable; and
- (8)** As appropriate, proposed method of achieving environmental and historic sensitivity compliance.

b. Site survey.

- (1)** Upon agency completion of an initial review for information sufficiency, coordination with the facility manager, and determination that there is no obvious reason to deny the request, a site survey with the wireless telecommunications provider should be scheduled, in part to determine whether the site actually meets the needs of the service provider. If feasible, from the information available, a response should be sent to the applicant as soon as possible, but no later than 60 days after receipt either granting or denying the siting request.
- (2)** If there is insufficient information to make a decision, the agency should send a preliminary response to the applicant as soon as possible, but no later than 60 days after receipt of the request. This response should inform the applicant of the need for any additional information, unique conditions or restrictions of the property, or other circumstances which may affect the timing or ultimate determination for site approval. In addition, the National Capital Planning Commission should be consulted for siting requests within the Washington, D.C. metropolitan area.

- c. Point of contact.** In all cases, the agency's response should include the name and telephone number of the agency representative or facility manager responsible for the project. This information will enable the applicant to initiate planning for the potential use of the requested site.
- d. Need for additional information.** If the preliminary response indicates additional information is required, the agency should review the applicant's response in a timely manner upon its receipt. The applicant should be advised in writing if there are any other review and reporting requirements necessary due to statutory, legal, or the agency's internal requirements prior to issuing a final decision. This may include an Environmental Assessment or an Environmental Impact Statement and public hearings as part of the National Environmental Policy Act, or any other potential reviews.
- e. Notification of fees.** Applicants should be advised as soon as possible of their responsibility for any charges for Government services provided in the review process or other issues which need to be resolved. This response should provide the applicant with an estimated time frame for completing the necessary actions and should be based on experience in dealing with projects of similar complexity.
- f. Final decisions.** Final decisions should be rendered in writing in a timely manner and after completion of all required reviews, evaluations or assessments. Denials of requests should provide the applicant with a written explanation of the reasons for denying the request. In addition, the applicant should be advised of the agency's appeal procedure and the name and mailing address of the appropriate agency official to whom the appeal should be sent.
- g. Formal documentation.** After agency determination to approve the project, a lease, permit, license or other legal instrument should be executed to document the terms, conditions, and responsibilities of both the Federal Government and the telecommunications service antenna provider.

Wireless Industry Background

A. Wireless Telephone Systems

Basic Operation

At the most basic level, a wireless phone is a radio. When a call is made on a wireless phone, the message is transmitted by low-energy radio signals to the nearest antenna site. The call is then sent through the wireless network and is eventually connected with the local phone network. The call is delivered by the phone lines to the office or home number dialed, or by radio signals to another wireless phone.

Wireless technology uses individual radio frequencies over and over again by dividing a service area into separate geographic zones called cells. A cell's coverage can be as small as an individual building (for example, an airport terminal or sports arena) or as large as 20 miles across. Each cell is equipped with its own radio transmitter/receiver antennas.

Because the system operates at such low power, a frequency being used to carry a phone conversation in one cell can be used to carry another conversation in a nearby cell without interference. This concept is known as *frequency re-use* and allows much greater capacity than radio systems like Citizens Band (CB) in which all users must try to get their messages on the same limited channels. When a customer using a wireless phone — car phone or portable — approaches the boundary of one cell, the wireless network senses that the signal is becoming weak and automatically hands off the call to the antenna in the next cell into which the caller is traveling.

(A more detailed description can be found in Chapter 4, The Anatomy of a Wireless System.)

• T I M E L I N E •

1876 Alexander Graham Bell receives a patent for his invention of the telephone. **1895** Guglielmo Marconi, an Italian inventor, pioneers the first wireless transmissions, communicating with vessels at sea. **1908** Reginald Fessenden completes an 11-mile wireless telephone call from Brant Rock, Massachusetts, following up experiments in broadcasting live music over radio waves. **1921** The Detroit police begins using a mobile telephone service.

Classification of Services

Wireless services include Commercial Mobile Radio Services (CMRS), Private Mobile Services (PMS), and fixed wireless services such as Basic Exchange Telephone Radio Services (BETRS). The CMRS category was created by Congress in 1993 (which originally labeled it CMS, or Commercial Mobile Services). Congress made it clear that CMS includes Personal Communications Services (PCS), Enhanced Specialized Mobile Radio (ESMR), cellular and cellular-like services, and other radio-based services that interconnect with the public switched telephone network.

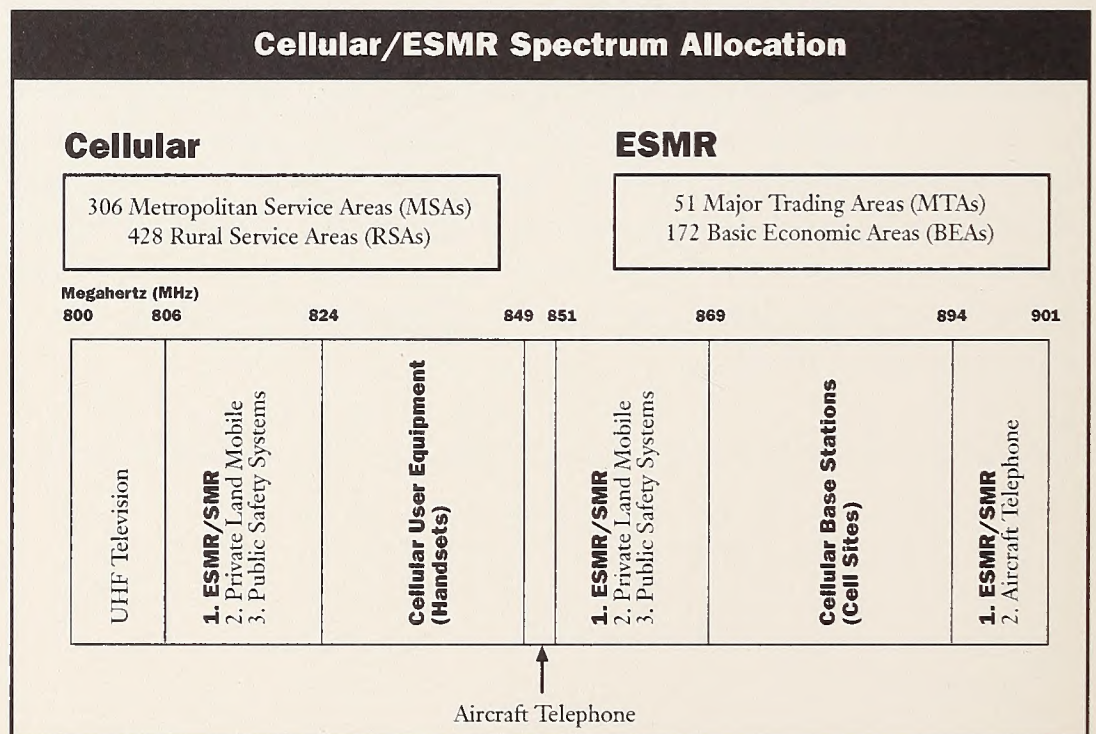
The FCC subsequently enacted rules establishing the CMRS category. Commercial Mobile Radio Services are those services that are (1) offered for profit and (2) provide “interconnected” service to the public. They are exclusive of public safety and governmental services and “businesses and other private entities who operate mobile systems exclusively for internal use[.]” A detailed discussion of these elements appears in Chapter 2.B., *Common Characteristics of Wireless Telephone Systems*.

Under these provisions, the FCC classified pre-existing common carrier services such as cellular, air-to-ground, Mobile Telephone Service (MTS), Improved Mobile Telephone Service (IMTS), trunked mobile service, the Offshore Radio Service, and common carrier paging services as CMRS. Personal Communications Services (PCS) were presumptively classified as CMRS by the FCC.

For the purposes of fee assessments for communications sites, the Bureau of Land Management has derived a similar, yet distinct, classification of services. Please refer to the BLM’s fee schedule for more information.

Cellular

Traditional cellular services are licensed by the FCC to operate at frequencies of 824-849 MHz and 869-894 MHz — commonly called the 800 MHz band. Prior to its allocation for cellular uses, the 800 MHz band was home to UHF television channels. With the advent of cable television in the 1970’s, the FCC decided to re-allocate this lightly-used portion of the spectrum. Initially, the FCC allocated a 40 MHz block for cellular services, but in 1986, in response to growing demand for the service, the FCC allocated an additional 10 MHz. (See Chart) As with all Commercial Mobile Radio Services, cellular technology works on the concept of frequency re-use.



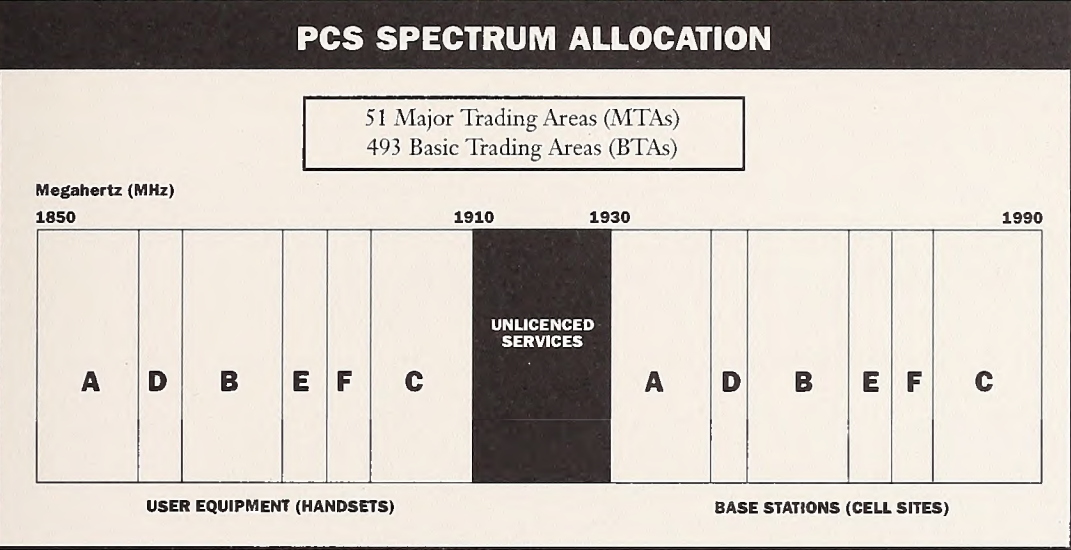
• T I M E L I N E •

1929 Transatlantic ocean liners begin to offer ship-to-shore radio service that is interconnected to the public telephone network. **1933** Major Edwin Howard Armstrong receives patents for the development of frequency modulation, or FM. **1942** Allied forces begin to use FM mobile radios in World War II. **1946** AT&T’s Bell Laboratories receives approval from the FCC for the first commercial mobile radiotelephone service, which begins in St. Louis and spreads to 25 other cities.

Personal Communications Services (PCS)

The term Personal Communications Services — or PCS — actually applies to two different sets of services at different locations along the radio spectrum. Narrowband PCS services operate between 901-902 MHz, 930-931 MHz and 940-941 MHz, and most of these licenses will be used to provide advanced messaging and two-way paging services. Broadband PCS service, at least initially, will be very similar to traditional cellular service, and indeed, many industry observers argue that there will be no perceivable difference to

the end user. There are, however, some technical differences. Broadband PCS has been allocated a large block of spectrum in the 1900 MHz block — also known as the 1.9 GHz band. Specifically, the FCC licenses Broadband PCS to operate between 1850 and 1990 MHz. Licensed service occupies 120 MHz of this band, while unlicensed services occupy 20 MHz in



the middle of this range. (See Chart) This block of spectrum was formerly occupied by fixed microwave transmission services. These licenses were issued mostly to local governments, petroleum companies, utilities and railroads, but with improved technologies, the same services could be offered at different places on the spectrum. By freeing up this block of spectrum in 1993, Congress and the FCC paved the way for the PCS providers that are now entering the marketplace.

Although cellular services are becoming more digital in nature, PCS has started as an entirely digital service. (See Chapter 2.F for a comparison of digital and analog technologies). Digital technologies not only increase efficient use of the spectrum but will promote a range of new services, including wireless local loop services (See Chapter 1.B.) and “one-number” calling. In promoting handsets that are “smaller and lighter” than cellular, PCS will require more antenna sites to offset smaller batteries, smaller handsets, and a radio signal that does not travel quite as far as those at 800 MHz.

Enhanced Specialized Mobile Radio (ESMR)

ESMR services evolved out of Specialized Mobile Radio (SMR) services, which were primarily used for group communications and fleet dispatch — services typically used by taxicab companies, repair companies, utilities, ambulance services and other mobile workers. SMR services are generally offered on a local or regional basis and are analog in nature, while ESMR services are digital and offered on a wide-area basis. Dispatch remains a key use for ESMR subscribers, but the digital technology also enables more enhanced and diversified services. Although ESMR uses a smaller slice of spectrum (typically 10-15 MHz, and not more than 19 MHz, in the 800 and 900 MHz bands) than cellular or PCS, it will be yet one more competing service in the wireless marketplace. Furthermore, because the network architecture is comparable to cellular and PCS, ESMR companies will be seeking similar properties for their own antenna sites.

• T I M E L I N E •

1947 Bell Labs’ engineers develop the concept of cellular technology but do not immediately press ahead with commercial development. **1962** AT&T begins testing the technology for cellular communications. **1968** The Federal Communications Commission begins the proceedings that would lead to the spectrum allocation for cellular communications. **1973** The first truly mobile radiotelephone, the DynaTAC, is introduced by Motorola.

B. Common Characteristics of Wireless Telephone Systems

The preceding section described the different types of wireless telephone systems and drew some of the distinctions between them. In this chapter, the common elements of wireless radio systems will be identified. All of the services discussed are classified by the FCC as Commercial Mobile Radio Services (CMRS). The following characteristics will help define more precisely what a CMRS provider's service is.

Commercial

Systems are built and the services are offered for a profit, *i.e.* with the intent of receiving compensation or monetary gain. This distinguishes them from other non-commercial uses of radio such as two-way radio, citizens band, or amateur band radio for which no fees are collected by a system operator.

Mobile

Originally, all CMRS carriers were authorized to provide their services to facilitate mobile communications; that is, the customers would be able to move around within the service area and still be able to use the service. Today, such mobile service constitutes the majority of the service provided. However, several commercial applications arose for which mobility was not an issue. For example, wireless service providers are often the more economical choice for providing telephone service to remote houses. Rather than install telephone lines and wires to a remote location at considerable expense, telephone companies can offer such remote customers full telephone service via wireless communications. Recently the FCC has considerably relaxed the mobility requirements to pave the way for competition for this "fixed wireless" telephone service. (*See also Chapter 1.A.*)

Public

The FCC mandates that CMRS providers make their services "available to the public, or to such classes of eligible users as to be effectively available to a substantial portion of the public."

Interconnected

All CMRS providers must offer the capability to make and receive telephone calls. Some services (such as cellular and most PCS systems) are dominated by telephone-type applications, where customers make and receive phone calls just as they would from their home phones. Other CMRS providers (such as ESMR) concentrate on providing a sophisticated two-way, wide area radio service that is also capable of making and receiving telephone calls. Regardless of which wireless system is being used, calls can be connected to the traditional wireline network, either locally or by using a long-distance provider.

• T I M E L I N E •

1981 The FCC decides on licensing rules for cellular service: two competing licensees in each market, one the wireline telephone company and the other a non-wireline concern. With the completion of the rules proceeding, the Commission begins licensing systems through comparative hearings. **1983** On October 13, Ameritech Mobile Communications launches the nation's first commercial cellular service in Chicago. On December 16, the nation's... second cellular system comes online in the Washington-Baltimore area, operated by American Radio Telephone Service, Inc. (ARTS).

Implications

The “available to the public” and “commercial” stipulations create two other conditions that help describe wireless services. First, they must be of relatively high capacity so that large numbers of subscribers can be accommodated. Second, they must cover a fairly large geographic area to be of commercial value to prospective customers. The capacity requirements and the geographic requirements in large part determine the design of wireless systems, as will be developed more fully in subsequent chapters of this manual.

* * * * *

These services all form part of a converging wireless marketplace. Traditionally described as separate forms of telecommunications, either by virtue of their application for specific consumer groups or by virtue of their differing positions along the spectrum band, all wireless services are increasingly perceived to be current or potential substitutes for each other. The FCC observed in its *First Annual Report to Congress on Competitive Market Conditions with Respect to Commercial Mobile Services* that “the previously discrete categories of services within CMRS are beginning to compete with each other and CMRS may become a single market for telecommunications for ‘people on the move’” and that it has been predicted that the availability of CMRS services, and the entry of PCS and satellite-based systems will generate new entry and lower prices, and that “these trends all improve consumer benefits and should be encouraged.” In the end, it will be left to the judgment of the consumer, who may make no fine distinctions between the underlying cellular, ESMR, or PCS provider.

• T I M E L I N E •

1984 Washington-Baltimore becomes the first market to have two competing cellular systems, when Bell Atlantic joins ARTS in offering service. At year-end, cellular subscribership stands at 91,600 users. **1985** The 100th cellular system is turned on in New Bedford, Massachusetts. **1986** With comparative hearings taking too long to award licenses, the FCC opts to use a lottery system to license cellular markets. At the urging of industry, the FCC allocates an additional 10 MHz of spectrum for cellular telecommunications. Cellular subscribership tops 2 million.

C. Cellular History and Topology

In setting the ground rules for cellular service, the FCC identified 734 geographic markets where a licensee could operate. Initially, the FCC based its market areas on the U.S. Census Bureau's Standard Metropolitan Statistical Areas (SMSA). From these market regions, which use counties as building blocks, came the concept of the MSA, or Metropolitan Service Area. The FCC created 305 of these MSAs to cover the nation's metropolitan areas and added one more to cover the Gulf of Mexico — for a total of 306 MSAs. The country's remaining areas were then partitioned into 428 Rural Service Areas (RSA), again built from adjoining counties. Generally, an MSA will cover a central business district and its surrounding counties, and an RSA will cover similarly situated rural regions of a particular state. (*See Map*)

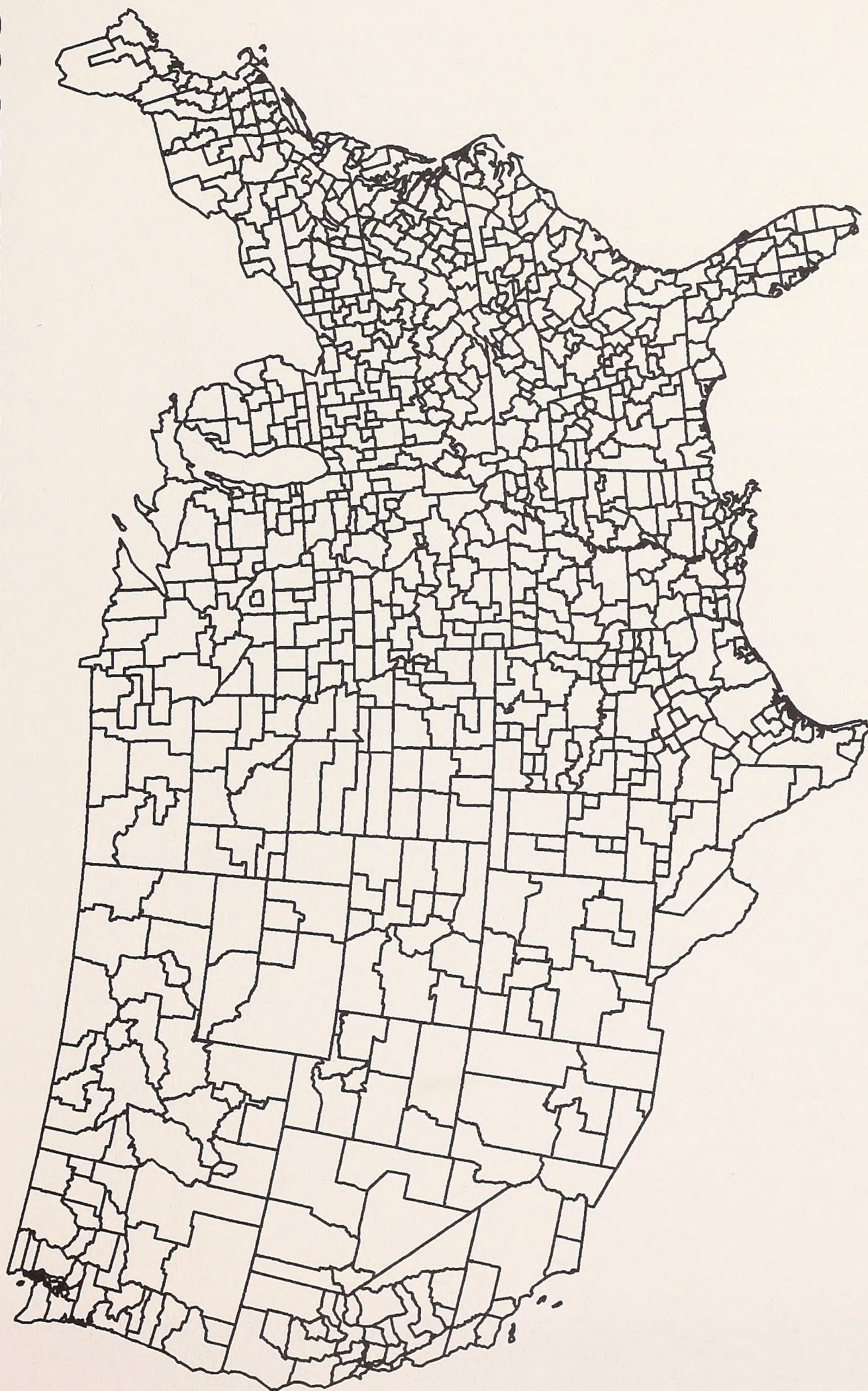
The FCC issued its final report on cellular services in 1981. In a move now seen as crucial to the long-term success of the industry, the FCC licensed two carriers to serve each of these 734 markets. This decision was far-reaching for its time, given that the nation was then still served by one monopoly phone company, AT&T.

The nation's first commercial cellular service began in Chicago in October 1983, when Illinois Bell turned on its system. Within two months, the second system to offer commercial service was launched in Washington, D.C., by American Radio Telephone Service (ARTS), a non-wireline licensee. The two original experimental systems had given birth to the first commercial systems. It has taken several years, but all 734 markets are now served by two carriers. Cellular systems now cover more than 95% of the United States population.

• T I M E L I N E •

1989 The FCC concludes its lotteries for awarding rural cellular market licenses (RSAs). **1990** Nextel Communications, Inc. files a series of waivers with the FCC to set up low-power, multiple transmitter networks in six of the top U.S. markets. Cellular subscribership surpasses 5 million. **1992** The FCC allocates spectrum in the 2 GHz band for emerging technologies, including Personal Communications Services (PCS). The number of cellular users passes the 10 million milestone. **1993** The FCC announces rules for licensing PCS in the 2 GHz band.

Cellular Markets



D. PCS History and Topology

By 1992, there were over 10 million cellular subscribers in the United States. Recognizing the enormous demand for wireless telecommunications, the FCC allocated more spectrum for new wireless services. In September 1993, the FCC allocated 140 MHz of spectrum for Personal Communications Services (PCS) — 120 MHz for licensed services, and 20 MHz for unlicensed services. The FCC “re-harvested” this spectrum block from fixed microwave transmission spectrum.

Whereas cellular licenses were distributed by comparative hearings and lotteries, PCS licenses were granted through auctions. Mandated by Congress and implemented by the FCC, the PCS auctions brought in over \$20 billion to the Federal treasury.

The licenses were auctioned into two areas: Major Trading Areas (MTAs) and Basic Trading Areas (BTAs). Both of these market areas are defined with boundaries by the Rand McNally Corporation. As modified for PCS licensing, there are 51 MTAs and 493 BTAs that cover the United States and its territories. An MTA is approximately the size of a state and a BTA is approximately the size of a metropolitan area. All BTA boundaries follow county lines and are drawn to include the county or counties which are located in and around a commercial center, typically a town or city. Major Trading Areas are, in turn, composed of BTAs and are named after one or more major cities within its boundaries. Although they are approximately state-sized, MTAs do not follow state boundaries. Of the 51 MTAs, 42 are interstate in nature, and of the 493 BTAs, 115 are interstate in nature. (*See Map*)

The licensed spectrum is divided into three 30 MHz licenses for each MTA and three 10 MHz licenses for each BTA. As a result, up to six PCS competitors could enter any given market.

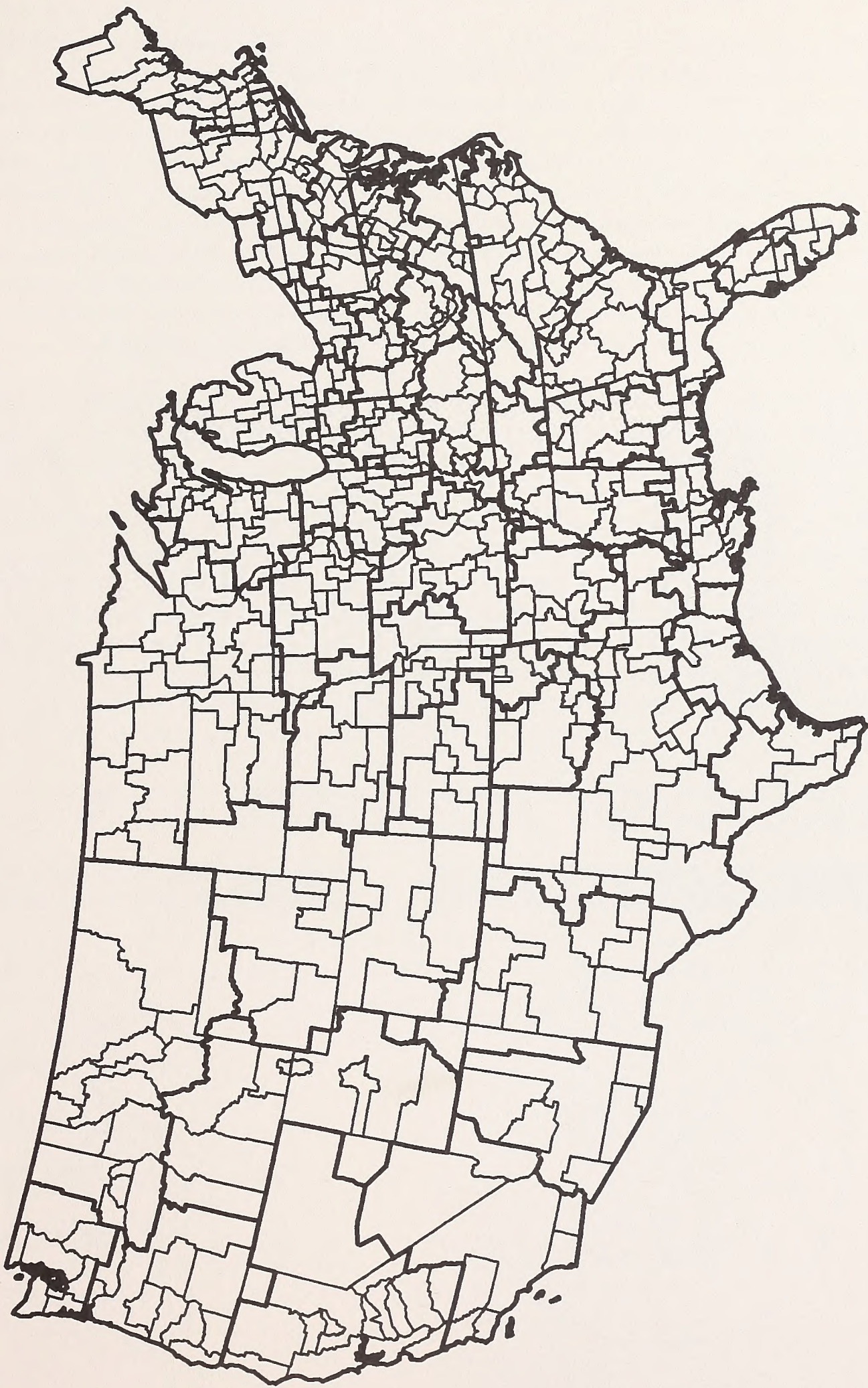
PCS service providers have differing build-out requirements based on population coverage, depending on the type of license they obtained. Licensees of 30 MHz blocks must provide adequate service coverage to at least *one-third* of the population in their licensed area within five years of being licensed. They must provide adequate service coverage to *two-thirds* of the population in their licensed area within ten years of being licensed. Licensees of 10 MHz blocks must provide adequate service coverage to at least *one-quarter* of the population in their licensed area within five years of being licensed, or they may make a showing of substantial service in their licensed area within that time. Licensees may choose to define population using either the 1990 Census or the 2000 Census.

The ground rules set by the FCC ensure that PCS will become a serious competitor in the wireless market. In fact, many PCS operators have begun offering service, while many more are completing the initial stages of their system build-out. Whether currently operating or not, PCS licensees are focused on securing antenna sites for their networks. FCC build-out requirements are compelling the licensees to erect antennas quickly. However, the market reality for a PCS carrier — competition from two incumbent cellular providers, an ESMR operator, and a potential of five more PCS competitors — is no less a factor.

• T I M E L I N E •

1994 AT&T re-enters the cellular industry with its purchase. . of McCaw Cellular Communications, the nation's largest provider. **1995** American Personal Communications launches the nation's first PCS system in Washington, DC. **1996** President Clinton signs the Telecommunications Act of 1996, in part designed to open other communications markets to competition. **1997** Subscriberhip in the wireless industry—cellular, PCS, and ESMR — surpasses 50 million.

PCS Markets



E. ESMR History and Topology

Enhanced Specialized Mobile Radio Service is, as the name suggests, an improvement upon the original concept of Specialized Mobile Radio (SMR). SMR itself represented an improvement upon conventional two-way radio systems, because it combined single channels into trunking groups that greatly increased the systems' ability to handle traffic on these channels. Trunking allows for automatic sharing of radio channels; once the SMR system has selected a channel, the end user has private use of the channel. One way to understand the advantage that trunking brings to a system is to imagine a bank with 5 tellers working. In a conventional arrangement, each customer would be assigned a particular teller. One teller could have half a dozen customers waiting, another teller might have only one, and a third teller might be idle. A more efficient system would be to form one line and then have a customer go to the next available teller. This reduces waiting time and increases the capacity, as no teller is idle while another is swamped. By replacing tellers with radio channels, and understanding that the system makes split-second decisions, the concept of trunking can be understood.

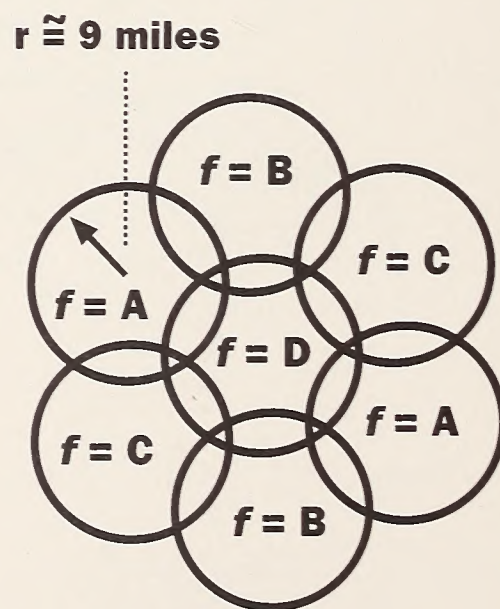
These so-called trunking efficiencies, however, still did not provide sufficient capacity to satisfy the market demand for two-way radio services. Thus, Enhanced SMR was developed using the concept of *frequency re-use* that is central to most wireless systems in use today. (See also Chapter 2.A., *Wireless Telephone Systems*)

SMR systems were originally designed to consist of a single, high-powered, high-elevation antenna site which would serve a nominal radius of 35 miles. To avoid interference between two competing radio signals, a minimum separation of 70 miles was maintained between towers. Thus, any particular SMR channel could only be used every 70 miles without creating interference. The enhancement of ESMR is to lower the power and lower the antenna height which in turn shrinks the coverage area and increases the number of times a particular channel can be used in any geographic area. (ESMR systems are licensed into Basic Economic Areas [BEAs], which are similar to the MSA/RSAs of cellular and the BTAs of PCS). The figure below depicts how re-use can multiply the number of times a particular frequency can be used in a given geographic area.

ORIGINAL SMR



ENHANCED SMR



F. Comparison of Cellular, PCS, and ESMR

SIMILARITIES

Any analysis of the three wireless services will reveal that they exhibit far more similarities than differences. Among the similarities of these systems are:

Customer Equipment

The photographs below illustrate the most compelling similarity among the various services. In the case of PCS and cellular, most manufacturers use identical housing, batteries, menus, chargers, etc., changing only the antenna length to optimize performance. All units have an earpiece, a mouthpiece, a keypad, and an antenna in a rugged housing.



CELLULAR HANDSET

Source: Ericsson

PCS HANDSET

Source: Nokia

ESMR HANDSET

Source: Motorola/Nextel

The design of the handsets follows the primary functions that all three services provide. All are built to carry telephone calls, which is the principal source of traffic on both PCS and cellular systems and a significant amount on ESMR. To varying extents, each of the services can also offer a service that might best be described as a wide-area intercom service, operating much like a two-way radio system. This service is useful to companies that use a dispatcher to direct the activities of field crews such as delivery companies, taxicab companies or office equipment repair firms.

High Capacity

All systems are built to carry large volumes of traffic relative to the conventional systems that they replaced. Increased capacity is achieved in various ways:

- *Trunking efficiencies*, as described in Chapter 2.E., provide more efficiency and higher capacity.
- *Frequency re-use*, which is described in Chapter 2.A., means that several antenna sites of relatively modest height are used to serve an area that can also be served by a single very high antenna site. The trend in the wireless industry is toward more, but lower and smaller, sites. Each site uses the same set of radio frequencies.
- *Digital technologies* can expand the amount of traffic handled on any single channel by multiples of between 3 and 7. The digital technologies compress a speaker's voice at the telephone, then expand it at the other end. To understand this, think of a sentence of speech as a pitcher of orange juice. Just as you can extract the water from the orange juice, freeze it, ship it in a smaller container, and add the water back when you wish to drink it, so can you squeeze the "water" out of a sentence, ship it over the airwaves as a smaller package, then add the "water" back at the other end of the call.

Low Power

Frequency re-use provides another benefit to users and system operators. Wireless networks are two-way communications systems—not only must the mobile unit be able to "hear" the signal from the tower, but the tower must be able to "hear" the signal coming from the mobile unit. In the early, low-capacity systems, the mobile units had to be capable of transmitting at very high power levels to carry the signal over the considerable distances between communications towers. High-powered radio transmitters required a robust source of electric power, so early units were restricted to vehicle installation, where they could draw power from a large battery. Now, greater frequency re-use has been achieved by lowering both the radio power and the height of the transmitter. A useful analogy illustrates this shift: one may use many 40-watt light bulbs to provide the same illumination as a 200-watt flood light.

Since the radio towers are now placed closer together, the mobile unit is never too far from a tower location, and can transmit at a much lower power. So, instead of 25- and 35-watt transmitters that fit in the trunk of a car, all of these phones operate at fractional wattages, varying from 0.6 watts down to 0.0048 watts. Without the frequency re-use, the portable wireless devices now so prevalent would not be possible.

To review, all of these systems utilize the same technological building blocks to provide very similar services. The key technology components all increase capacity. These are: *trunking* (combining many channels to increase efficiency), *digital transmission* ("squeezing" voice traffic so more calls can be handled on a single channel) and *frequency re-use* (using many low-powered base stations instead of a single high-powered base station to serve a given geographic area).

DIFFERENCES

Although the technologies used by wireless service providers are essentially alike, there are some differences among the services that should be noted.

Geographic Allocations

The FCC has used different rules to parcel out licenses for cellular, PCS and ESMR. The table below presents these differences.

Service	Geographic Allocation
Cellular	Two licenses (designated A and B) were issued for each of 734 geographic areas. These consist of 306 Metropolitan Statistical Areas (MSAs) and 428 Rural Service Areas (RSAs).
PCS	Six licenses (A-block through F-block) were auctioned. Two licenses (A and B) issued for each of 51 Major Trading Areas (MTAs), four licenses (C-F) issued for 493 Basic Trading Areas (BTAs).
ESMR	Originally licensed as 35-mile circles around a specific tower site, in groups of five channels at a time. Later consolidated by operators to provide wide area coverage and increased capacity by aggregating channels. Geographic rights to spectrum auctioned in MTAs and Economic Areas (EAs), designated by the U.S. Bureau of Economic Analysis, U.S. Department of Commerce.

The geographic allocations discussed on the previous page almost never coincide, creating different system design approaches, depending upon the service. The maps below compare the license areas for cellular, PCS and ESMR in Arizona.

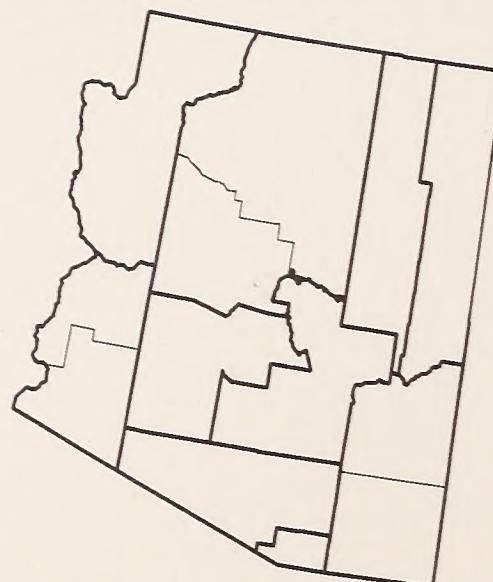
Arizona MSA/RSA Markets



Arizona BTA/MTA Markets



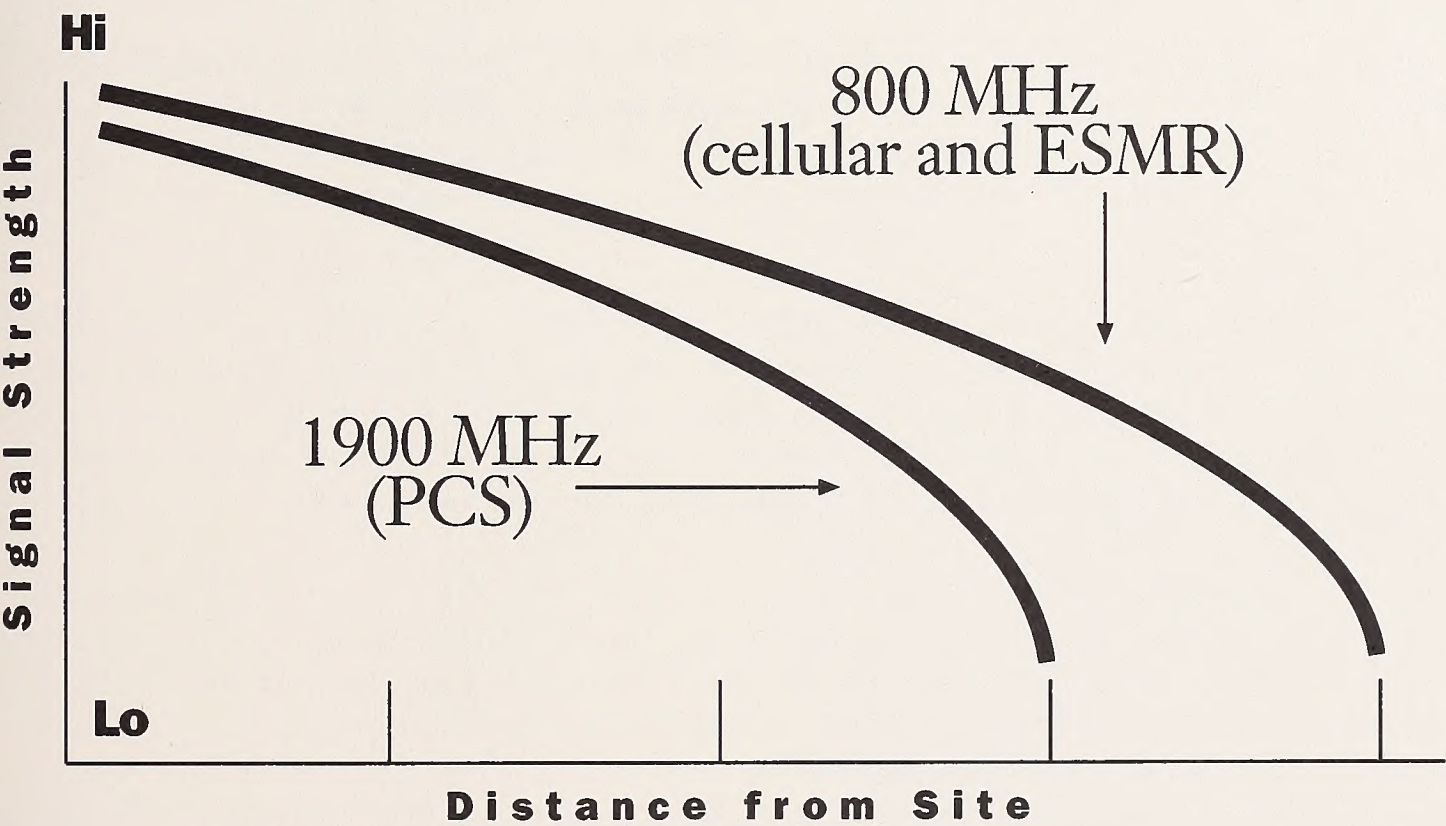
Arizona MSA/RSA, BTA/MTA Markets



Different Spectrum Allocations and Varying Signal Propagation

The charts contained in Chapter 2.A. depict where on the spectrum “dial” these wireless stations operate. Although the services are transparent to the end-user, the licensees’ specific assignments on the spectrum result in minor variances between the radio signals. Radio waves behave differently depending upon where they fall in the spectrum. For all practical purposes, the physics of cellular and ESMR are identical. PCS frequencies lie higher on the spectrum. All things being equal, a PCS radio signal will not reach as far as either a cellular or ESMR signal, which means that PCS systems typically will require more antenna locations to serve the same geographic area as either cellular or ESMR.

The chart below depicts the relative performance of 800 MHz spectrum vs. 1900 MHz spectrum at the same power output levels.



Different Construction Requirements

Cellular, PCS and ESMR licenses were all granted by the FCC under the conditions that the systems be built in a timely fashion to serve the markets for which they were licensed. This prevents licensees from “warehousing” spectrum that is intended to serve the public interest, convenience and necessity. The chart below outlines the system construction, or build-out requirements imposed upon each service:

Service	Construction Requirement
Cellular	Geographic area not covered by adequate radio signal strength after 5 years is forfeited to FCC and auctioned.
PCS (30 MHz license)	Coverage must serve 1/3 of population in MTA/BTA within 5 years of license grant and 2/3 of population within 10 years.
PCS (10 MHz license)	Coverage must serve 1/4 of population in BTA within 5 years of license grant or must demonstrate “substantial level of service.”
ESMR	Coverage must serve 1/3 of population in Economic Area (EA) or MTA within 3 years of license grant and 2/3 of population within 5 years.

Digital vs. Analog

Wireless service began by using analog technologies. Still the most common service, analog technology translates a call into a continuous radio wave signal in the same manner an FM radio station does. The signal is then converted back to voice by the mobile phone. Of course, this is a two-way process: the phone converts both voice to radio waves and radio waves to voice. The term “analog” implies that these signal waves are just that — an analogue of the actual sound waves that your voice emits.

A voice signal weakens as it travels through the air. Equipment in the wireless network returns the signal to its original strength or amplifies it. But any noise in that signal is amplified, too. Digital technology filters out the transmission by regenerating the voice signals, but not the associated background noise. With digital transmissions, a conversation is converted into the ones and zeros of computer code. Unlike analog transmissions that are sent out as a continuously varying electrical signal in the shape of a wave, digital transmissions are a combination of on-and-off pulses of electricity. The small “computers” found in the phones and the larger, complex computers found in the wireless network essentially create a precise replica of the voice waves, eliminating interference in the process.

The difference between an analog phone and a digital phone is often likened to the difference between a phonograph record player and a compact disc player. Analog systems replicate sound waves much like a phonograph’s needle vibrates along a record’s groove. Digital systems convert those analog signals into binary computer code, and back again, just as a CD player does when it reads the information that has been etched on the disk.

Digital technology can provide for benefits not available using analog phones. First, the digitization of the signal allows for a more efficient use of the spectrum. In other words, more calls can be placed using the same amount of spectrum. To the end user, this may translate to fewer dropped calls and fewer "fast busy" signals, which are an indication of an overload on the wireless system. Other benefits of this efficiency are improved battery life and additional features and services. For example, digital phones can be used not only for voice conversations, but also can feature paging services and caller identification. Finally, to the extent that digital signals are more difficult to intercept, digital technology enhances the privacy of a call.

As a "first generation" technology, analog transmission is still the predominant means of wireless communications. However, the use of digital phones is growing and this trend is expected to continue. The most prevalent digital technologies available are known as CDMA, GSM (also known in North America as PCS-1900) and TDMA. These are all means by which the signals are digitized for transmission.

In this discussion, it is important to separate the distinction between technologies and the labels that are attached to the different types of wireless services. Many assume that cellular is only an analog service and that PCS and ESMR are digital services. In fact, many traditional cellular operators are upgrading their analog systems with digital equipment. While it is true that PCS and ESMR carriers offer only digital service, cellular carriers are increasingly offering both digital and analog service, often using the same handsets. The consumer is the ultimate arbiter of which technology he or she plans to use.

G. Current Industry Commercial Structure

Although the end-user may perceive no difference among the many wireless service providers, there are some relevant differences in terms of the operations of the companies. The wireless industry has gone through a significant amount of both growth and consolidation since it began in the early 1980's. Many service providers are affiliated with local phone companies; in fact, the FCC granted one of the two initial cellular licenses in each service area to the "wireline" company. Today, their presence is seen in carriers such as GTE Wireless, ALLTEL Mobile, and Southwestern Bell Mobile Systems. Other carriers are affiliated with long-distance companies; AT&T Wireless and Sprint PCS are two of the largest. Of course, many companies remain "pure-play" wireless providers. These include AirTouch, Western Wireless and Nextel. Many companies operate both PCS and cellular networks, although there are specific limits to doing so in the same geographic market. Additionally, it should be noted that, as with many telecommunications companies today, these various providers may also be affiliated with other businesses, including cable television, paging or satellite services.

Despite the growth, consolidation and affiliation, there are still hundreds of wireless licensees in the United States. Many leverage national brand names while others use different names in different markets. One national brand name, Cellular One, is just that — a brand name — in that no one operator uses it. Instead, individual carriers pay the Cellular One Group a "franchise fee" for the use of the name. For example, Southwestern Bell Mobile Systems operates Cellular One service in Washington D.C., Chicago and Boston, and Vanguard Cellular Systems also operates under the Cellular One brand name in most of their markets.

Within the next few years, any given market may be served by up to nine wireless carriers. Two traditional cellular carriers, up to six PCS carriers and most likely, one to two ESMR carriers could eventually operate in any market. Additionally, recent FCC rules have granted wireless carriers a level of flexibility with their licenses. First, the FCC now allows carriers to geographically partition their license areas. This ruling will create opportunities for new carriers to operate in locations unserved by the original licensee. Second, the recent FCC rules permit a licensee to disaggregate a portion of its licensed spectrum block and provide it to a new entrant. In other words, a 30 MHz PCS carrier may disaggregate 10 MHz of its spectrum and sell it to a niche carrier in its same market. While the original licensee retains 20 MHz for its own mobile operations, the niche carrier might use the 10 MHz to provide fixed services, like Wireless Local Loop. The end result of these new disaggregation and partitioning rules is a potential for even more competition in the wireless industry.

The following tables list the major wireless providers in each service category.

Cellular

Traditional cellular systems operate in 734 Cellular Geographic Service Areas (CGSAs), of which 306 are Metropolitan Service Areas (MSAs) and 428 are Rural Service Areas (RSAs). These markets cover all 50 states, as well as the District of Columbia, Puerto Rico, the U.S. Virgin Islands, the Northern Mariana Islands, Guam, and American Samoa. There are two carriers licensed in each of these 734 markets. (See *Map, Chapter 2.C.*)

MAJOR CELLULAR OPERATORS

Operator	General Area Served	Market Population (1990 Census)
AT&T Wireless Services	Varied	71,742,921
AirTouch Communications	Varied	64,290,313
Bell Atlantic Mobile	Eastern Seaboard, Southwest	56,858,587
BellSouth Corporation	Varied	46,722,181
GTE Wireless	Varied	49,664,166
Southwestern Bell Mobile Systems	Varied	43,188,046
Ameritech Cellular Services	Midwest	25,246,486
360° Communications	Varied	23,300,230
United States Cellular Corporation	Varied Rural	20,413,642
ALLTEL Mobile Communications, Inc.	South	7,841,055
Comcast Cellular Communications, Inc.	Mid-Atlantic	7,629,202
Century Cellunet, Inc.	South, Michigan	7,332,014
Vanguard Cellular Systems, Inc.	Varied, Mid-Atlantic, Northeast	7,304,739
SNET Mobility, Inc.	Southern New England	5,609,227
Western Wireless Corporation	West, Midwest	5,324,729
Centennial Communications Corp.	Midwest, Louisiana	5,224,949
CommNet Cellular, Inc.	Midwest/West Rural	4,075,587
Palmer Wireless, Inc.	Southeast	3,583,090
PriCellular Corporation	Varied	3,440,881
Cellular Communications of Puerto Rico	Puerto Rico, USVI	3,127,480
Frontier Cellular	Varied, New York	2,854,274
Radiofone	Louisiana, Michigan	2,319,326
SYGNET Communications, Inc.	Ohio, Pennsylvania, New York	2,248,736
Aliant Communications	Nebraska, Iowa	1,706,625
Dobson Cellular Systems, Inc.	Varied, Oklahoma, Maryland	1,574,974
Mercury Cellular and Paging	Louisiana, Alabama, Kansas	1,487,087
Cellular South	Mississippi	1,423,320
Atlantic Cellular Company	New England, Northern California	1,206,446
Liberty Cellular Inc.	Kansas	1,159,853

PCS

Personal Communications Services (PCS) carriers cover the same geographic area as cellular services; however, they are licensed in differently defined market areas. Two carriers, operating 30 MHz systems, are licensed in each of 51 Major Trading Areas (MTAs). MTAs are approximately the size of a small state, although they are centered around major metropolitan areas. There are 493 Basic Trading Areas (BTAs), which are component parts of the MTAs (*See Map, Chapter 2.D.*) Up to four carriers will be licensed in these smaller BTAs; one set of these carriers is licensed to operate 30 MHz systems, while the remaining three will operate 10 MHz systems. In total, up to six PCS carriers may provide service in any given market.

MAJOR PCS OPERATORS

Operator General	Area Served	Market Population (1990 Census)
Sprint PCS	Varied	144,938,590
AT&T Wireless Services	Varied	106,994,066
NextWave Personal Communications	Varied	103,578,674
PrimeCo Personal Communications	Varied	57,191,542
Omnipoint Corporation	Northeast	39,376,932
Pocket Communications	Midwest, Varied	33,556,355
Pacific Bell Mobile Services (SBC Corp.)	California, Nevada	31,036,409
Aerial Communications	Varied	25,756,307
Cox Communications	Southern California, Nebraska/Iowa	20,804,505
General Wireless	Varied	17,945,559
Western Wireless Corporation (VoiceStream Wireless)	Varied West/Midwest	17,619,693
Powertel, Inc.	Southeast	12,864,872
BellSouth Mobility DCS	Southeast	11,474,228
GTE Wireless	Northwest, Midwest	10,407,175
PhillieCo (Sprint PCS)	Mid-Atlantic	8,927,748
PCS 2000, L.P.	West, Puerto Rico	8,864,667
Ameritech Wireless Communications	Midwest	7,963,224
American Personal Communications	Mid-Atlantic	7,777,875
Chase Telecommunications	Tennessee	5,938,950
Centennial Wireless	Puerto Rico, U.S. Virgin Islands	3,522,037
Southwestern Bell Mobile Systems	Oklahoma	1,096,396

ESMR

As an outgrowth of the well-established SMR industry, the ESMR industry is fairly new in the wireless marketplace. There are a few ESMR providers, most of which are seeking to offer service on a nationwide basis. While ESMR carriers are currently licensed on a per channel, per site basis, the FCC is soon to adopt rules which will create wide-area geographic licensing.

Nextel, the largest ESMR provider, has tied together a national network of SMR frequencies to provide an all-digital voice and data service. Using the Motorola-developed iDEN technology, Nextel has begun its national roll-out in most major U.S. cities. Other providers, such as Geotek and Activated Communications, have also begun deploying service in various cities across the United States.

Major ESMR Operators

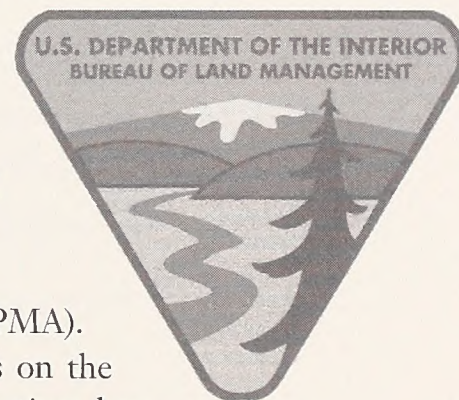
Operator	Covered Market Population (1990 Census)
Nextel Communications, Inc.	165,286,639
Geotek Communications, Inc.	69,045,270
Activated Communications, Inc.	7,261,176

Federal Land Management Agencies Background and Structure

A. Bureau of Land Management (BLM)

History

The Bureau of Land Management (BLM), an agency within the U.S. Department of the Interior, manages what remains of America's original 1.8 billion-acre "public domain." Created in 1946 during a government reorganization, the BLM is a successor to two former Federal agencies: the General Land Office and the U.S. Grazing Service. As historian E. Louise Peffer has noted, the creation of the BLM opened a new chapter in the history of U.S. public land administration.



In 1976 Congress enacted the Federal Land Policy and Management Act of 1976 (FLPMA). Congress directed the BLM to manage public lands and their various resource values on the basis of multiple use and sustained yield principles, so that they are utilized in a combination that will best meet the present and future needs of the American people. Title V of the FLPMA specifies that the Secretary is authorized to grant (or renew) rights-of-way over and upon the public lands for systems for transmission or reception of radio, television, telephone, telegraph and other electronic signals or means of communications.

Organization

With an annual budget of more than \$1.1 billion dollars, the BLM employs about 11,000 permanent and seasonal workers. The BLM is headquartered in Washington, DC, and has 12 State Offices and nearly 200 field offices. The BLM also oversees the National Interagency Fire Center in Boise, Idaho; the National Business Center, the National Human Resource Management Center, and the National Applied Resource Science Center, all in Denver, Colorado; and the National Training Center in Phoenix, Arizona.

A list of BLM State Offices is included in the Appendix.

Mission

The mission of the Bureau of Land Management is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations of Americans.

The BLM carries out its mission under numerous land-management and natural resource laws, the most comprehensive of which is the Federal Land Policy and Management Act of 1976 (FLPMA). All BLM policies, procedures, and management actions must be consistent with FLPMA and the other laws that govern the use of the public lands.

The BLM works to:

- Provide for a wide variety of public land uses while ensuring the long-term health and productivity of the land, as well as protecting significant natural, cultural, and historical resources;
- Use the best scientific and technical information available in order to make sound land-management decisions;
- Make decisions in collaboration with other Federal agencies, States, tribal governments, and the public;
- Understand the needs of rural and urban Americans and provide them with quality customer service;
- Recruit and retain a skilled and diverse workforce;
- Define and achieve objectives through the efficient management of financial, human, and information resources;
- Manage land records and other spatial data efficiently and effectively; and
- Ensure a fair return to taxpayers for the use of publicly owned resources.

BLM Public Lands and Administrative Jurisdictions Information

The BLM publishes a brochure, *Public Lands and Field Office Locations*, which describes and displays BLM public lands and administrative jurisdictions. It is an 8.5" x 22" (fold-up) map of the BLM jurisdictions, offices, and public lands. *Public Lands and Administrative Jurisdictions* is a large wall map version of similar information. *The Public Lands and Field Office Locations* brochure should be available at most BLM office public rooms, including the Office of Public Affairs, Washington, DC, (202) 452-5125.

In support of the effort to revise and maintain *Public Lands and Administrative Jurisdictions* and the *Public Lands and Field Office Locations* products, a database of jurisdictions, office locations, address/phone information, and BLM Public Lands (ownership) is being developed to support these products and for application to other Bureau projects. This data will lead the Bureau's effort in its "National Small Scale Database" initiative to develop Bureau-related national databases, including Planning Units, Wilderness Areas, Recreation, and other themes used to manage the Public Lands.

B. United States Forest Service

The U.S. Department of Agriculture Forest Service is a Federal agency that manages public lands in national forests and grasslands. The Forest Service is also the largest forestry research organization in the world, and it provides technical and financial assistance to State and private forestry agencies. Gifford Pinchot, the first Chief of the Forest Service, summed up the mission of the Forest Service: “to provide the greatest amount of good for the greatest amount of people in the long run.”

History

Congress established the Forest Service in 1905 to provide quality water and timber for the nation’s benefit. Over the years, the public has expanded the list of what they want from national forests and grasslands. Congress responded by directing the Forest Service to manage national forests for additional multiple uses and benefits and for the sustained yield of renewable resources such as water, forage, wildlife, wood, and recreation. Multiple use means managing resources under the best combination of uses to benefit the American people, while ensuring the productivity of the land and protecting the quality of the environment.



National forests are America’s Great Outdoors. They encompass 191 million acres (77.3 million hectares) of land, which is an area equivalent to the size of Texas. National forests provide opportunities for recreation in open spaces and natural environments. With more and more people living in urban areas, national forests are becoming more important and valuable to Americans. People enjoy a wide variety of activities in national forests, including backpacking in remote, unroaded wilderness areas, mastering an all-terrain vehicle over a challenging trail, enjoying the views along a scenic byway, or fishing in a great trout stream, to mention just a few.

Organization

The Forest Service’s administrative organization consists of a national headquarters office in Washington, DC, and nine regional offices. Within each region are National Forest administrative units. Each National Forest may have one or several ranger districts. The ranger district is the smallest administrative unit and closest to the day-to-day activities on National Forest System lands.

The Forest Service is a decentralized agency, in that the authority to manage most activities on National Forest System lands is delegated to the Forest or District level. *Therefore, wireless communications companies interested in siting facilities on the National Forest should contact the Ranger District office closest to the proposed site location.*

There are four levels of national forest offices:

Ranger District: The district ranger and his or her staff may be the first point of contact with the Forest Service. There are more than 600 ranger districts. Each district has a staff of 10 to 100 people. The districts vary in size from 50,000 acres (20,000 hectares) to more than 1 million acres (400,000 hectares). Many on-the-ground activities occur in the ranger districts, including trail construction and maintenance, operation of campgrounds, and management of vegetation and wildlife habitat.

National Forest: There are 155 national forests and 20 grasslands. Each forest is composed of several ranger districts. The person in charge of a national forest is called the forest supervisor. The district rangers from the districts within a forest work for the forest supervisor. The headquarters of a national forest is called the supervisor's office. This level coordinates activities between districts, allocates the budget, and provides technical support to each district.

Region: There are 9 regions, numbered 1 through 10 (Region 7 was eliminated some years ago). The regions are broad geographic areas, usually including several States. The person in charge is called the regional forester. Forest supervisors of the national forests within a region report to the regional forester. The regional office staff coordinates activities between national forests, monitors activities in national forests to ensure quality operations, provides guidance for forest plans, and allocates budgets to the forests.

National Level: This is commonly called the Washington Office. The person who oversees the entire Forest Service is called the Chief. The Chief is a Federal employee who reports to the Under Secretary for Natural Resources and Environment in the U.S. Department of Agriculture (USDA). The Chief's staff provides broad policy and direction for the agency, works with the President's Administration to develop a budget to submit to Congress, provides information to Congress on accomplishments, and monitors activities of the agency.

The Forest Service has a workforce of approximately 30,000 employees that reflects the full range of diversity of the American people. This includes cultural and disciplinary diversity, as well as diversity in skills and abilities. In the summer, the numbers increase to meet additional need for services by the recreating public.

A list of Forest Service offices, National Forests and Ranger Districts is included in the Appendix.

Mission

The job of Forest Service managers is to help people share and enjoy the forest, while conserving the environment for generations yet to come. Some activities are compatible. Some are not.

The Forest Service carries out its mission, *Caring for the Land and Serving People*, through five main activities:

- Protection and management of natural resources on National Forest System lands.
- Research on all aspects of forestry, rangeland management, and forest resource utilization.
- Community assistance and cooperation with State and local governments, forest industries, and private landowners to help protect and manage non-Federal forest and associated range and watershed lands to improve conditions in rural areas.
- Achieving and supporting an effective workforce that reflects the full range of diversity of the American people.
- International assistance in formulating policy and coordinating
- U.S. support for the protection and sound management of the world's forest resources.

ACTIVITIES

National Forest System: The Forest Service manages public lands, known collectively as the National Forest System, located in 44 States, Puerto Rico, and the Virgin Islands. The lands comprise 8.5% of the total land area in the United States. The natural resources on these lands are some of the nation's greatest assets and have major economic, environmental, and social significance for all Americans.

Forest Service Research: The Forest Service provides the scientific and technical knowledge necessary to protect and sustain the nation's natural resources on all lands, providing benefits to people within the capabilities of the land. Research is conducted through a network of forest and range experiment stations and through the Forest Products Laboratory.

State and Private Forestry: The Forest Service cooperates with state and local governments, forest industries, other private landowners and forest users in the management, protection, and development of forest land in non-Federal ownership. Activities include cooperation in urban interface fire management and urban forestry. State and Private Forestry works through the regional offices and through a special Northeastern Area office to provide these services.

Administration: The Forest Service provides leadership, direction, quality assurance, and customer service in carrying out agency business and human resource programs, such as Americorps, Job Corps, the Senior Community Service Employment Program, and the volunteer program. The agency hires, trains, evaluates, and promotes its employees; pays employees and contractors; acquires office space, equipment and supplies; and acquires, supports, and maintains the computer and communications technology needed to ensure efficient and effective operations.

International Forestry: The Forest Service plays a key role in formulating policy and coordinating U.S. support for the protection and sound management of the world's forest resources. It works closely with other agencies such as the Agency for International Development, the U.S. Department of State, and the Environmental Protection Agency, as well as with nonprofit development organizations, wildlife organizations, universities, and international assistance organizations. The Forest Service's international work serves to link people and communities striving to protect and manage forests throughout the world.

The Anatomy of a Wireless System

A. Theory of Operation

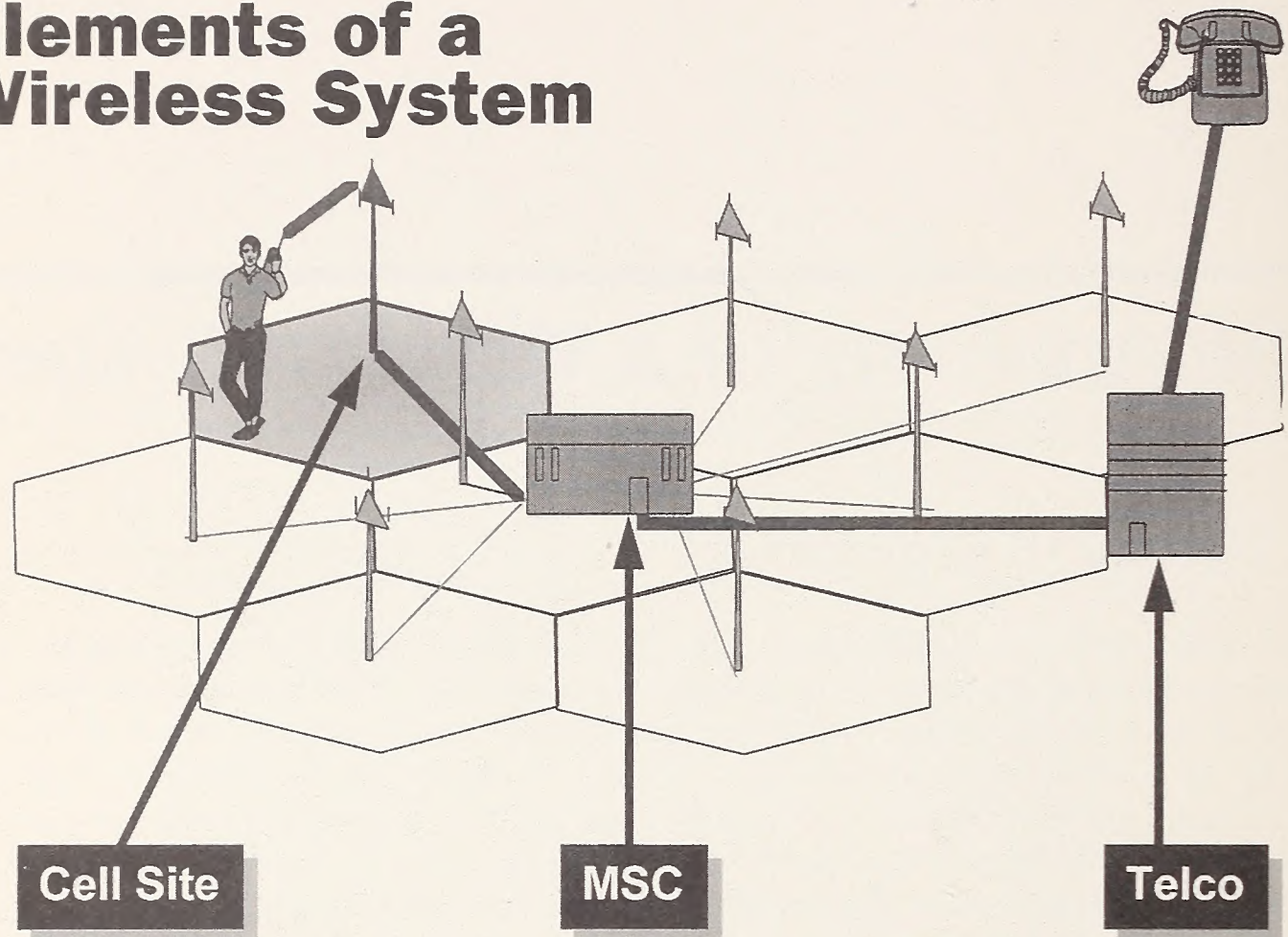
At the most basic level, a wireless phone is a radio. When a call is made on a wireless phone, the message is transmitted by low-energy radio signals to the nearest antenna site. The call is then sent to the Mobile Switching Center (MSC), which is the central “brain” of the wireless network. Based on the number dialed, the MSC will determine where to direct the call. Usually, the call is directed to the local landline phone company, where it eventually terminates at a home or office. Increasingly, however, the call will be directed back through the wireless network to another mobile unit. Similarly, the call may be passed directly to a long-distance carrier for eventual delivery to a distant local carrier.

Wireless technology uses individual radio frequencies over and over again by dividing a service area into separate geographic zones called cells. Cells can be as small as an individual building (for example, an airport terminal or sports arena) or as large as 20 miles across. Each cell is equipped with its own radio transmitter/receiver antennas.

Because the system operates at such low power, a frequency being used to carry a phone conversation in one cell can be used to carry another conversation in a nearby cell without interference. This concept is known as *frequency re-use* and allows much greater capacity than radio systems like Citizens Band (CB) in which all users must try to get their messages on the same limited channels. When a customer using a wireless phone — car phone or portable — approaches the boundary of one cell, the wireless network senses that the signal is becoming weak and automatically hands off the call to the antenna in the next cell into which the caller is traveling. Controlling the power levels at the transmitter allows the range of radio signals to be shaped to a single cell.

Unlike many other telecommunications service providers, the wireless industry must build infrastructure in line with each new subscriber. Without additional infrastructure, these new wireless users would be forced to use the same fixed “amount” of network capacity. Past a certain point, this scenario becomes a technical impossibility, resulting in deteriorating call quality, increased call blocking, and frequent “fast busy” signals. However, as demand grows, the wireless network can demonstrate its flexibility. The cell pattern that makes up the network can be endlessly replicated to cover an area of any size. When a certain cell hits its capacity — a given antenna site, for example, might be able to handle 50 calls at one time — the carrier considers “splitting” the cell. In other words, the carrier creates two or more cells to cover the same area previously served by one antenna site. Cell splitting is the frequency re-use concept in action, and it necessarily involves adding another antenna site.

Elements of a Wireless System



B. Mobile Switching Center (MSC)

Like most telephone switches today, the Mobile Switching Center (MSC) is essentially a large and complex computer. Although the MSC's primary role is to direct calls to and from wireless phones, it also processes the majority of the information that is necessary to operate the system. The switch also:

- monitors all calls
- processes call handoffs
- controls and monitors cell sites
- collects and stores billing information
- stores software and subscriber data
- facilitates roaming
- processes value-added features, such as voice mail and call forwarding

The MSC is also at times referred to as the Mobile Telephone Switching Office (MTSO).

C. The Subscriber Unit

Subscriber equipment operates using either analog or digital technology. The particular phone used depends on the network that the phone is accessing. (Many manufacturers are now making wireless phones that incorporate *both* digital and analog technologies into one handset). The fundamental difference between the two is that digital phones feature a vocoder — a device used to convert speech into digital signals. (See Chapter 2.F.) Regardless of this distinction, there are three kinds of wireless phones:

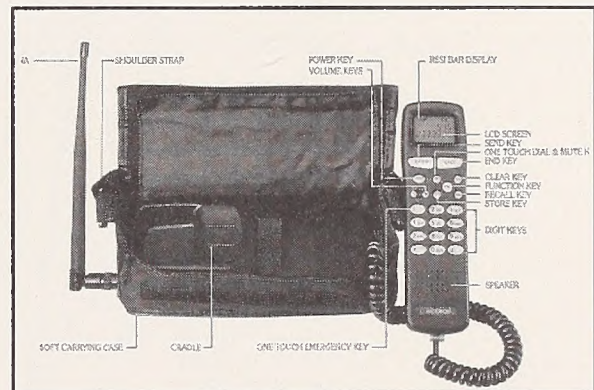
■ Mobile

Mobile phones are car-installed and are used with an antenna on the outside of the car. The equipment is powered by the car's battery. In models that are installed in the trunk, only the handset is mounted near the driver. Operating at power levels up to 3 watts, a mobile phone provides a stronger signal than a portable.



■ Transportable

Transportable phones, or “bag phones,” are essentially car phones with the handset, antenna and battery packaged together in a carrying case. They can be plugged into a car's cigarette lighter or operate off of a portable battery pack for use anywhere. Like a mobile phone, transportable phones can operate at up to 3 watts of power.



Source: Audiovox

■ Portable

Portable phones are small, hand-held units which can fit in a pocket, briefcase or purse. Using an attachment, many can be plugged into an automobile cigarette lighter to save battery power. As a smaller, lighter phone, a portable operates at power levels of up to 0.6 watt. Additionally, digital phones are generally portable phones.



Source: Nokia

D. The Cell Site

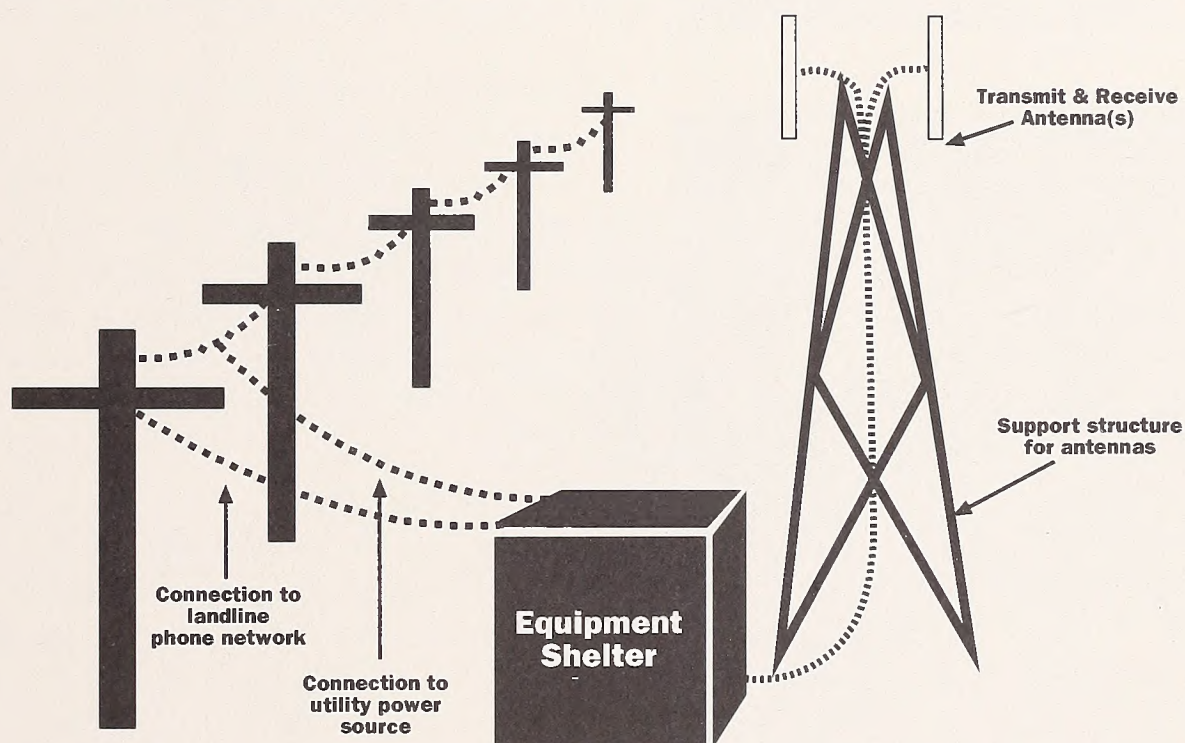
Cell sites are the building blocks of the wireless network. They are what makes wireless systems different from other telecommunications networks. By convention, the term “cell site” applies to any location where wireless antennas are located — not just an antenna tower. Wireless antennas can be located almost anywhere; however, they must “fit” into the rest of the network. For example, most antennas need to be located at a certain elevation to maximize their coverage signal and allow the radio signals to pass over nearby obstructions such as buildings, trees and hills. In most settings, an antenna must be placed anywhere from 50 to 200 feet above the ground. This means many antenna sites are placed on existing structures, such as water towers, or building rooftops.

As more sites are built, these height requirements diminish. Higher towers generally cover a larger geographic area but are subject to lower service demand. These are known as *coverage* sites, so named because they provide a basic level of service coverage. Shorter structures are often home to capacity sites, in that they cover smaller areas with more highly concentrated demand. Capacity sites are intended to increase the overall capacity of the wireless system. Some settings are conducive to these smaller and lower-elevated sites. Operators are currently siting antennas in airport terminals, baseball stadiums, and shopping malls, to name a few. Generally as a last resort do wireless operators seek to erect a new tower or monopole to hold the antennas.

(For a complete discussion of the cell site, please refer to Chapter 5, The Anatomy of a Cell Site.)

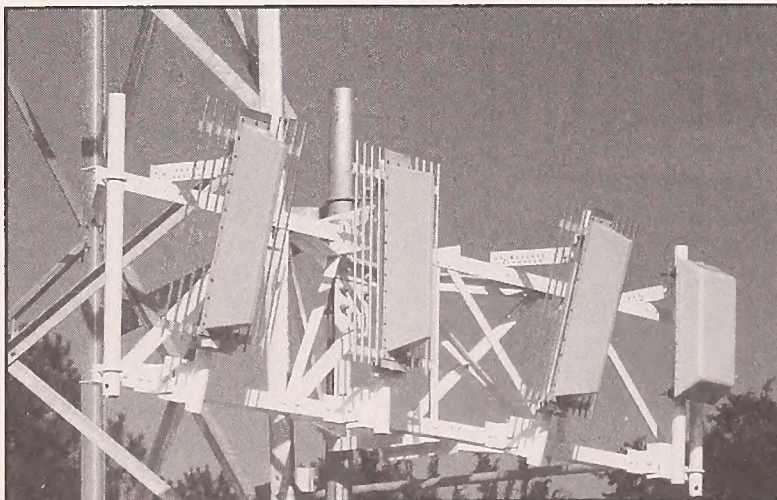
The Anatomy of a Cell Site

The front line of all wireless systems is the base station, or cell site. All wireless cell sites share certain common elements. The diagram below depicts these elements.



Antenna

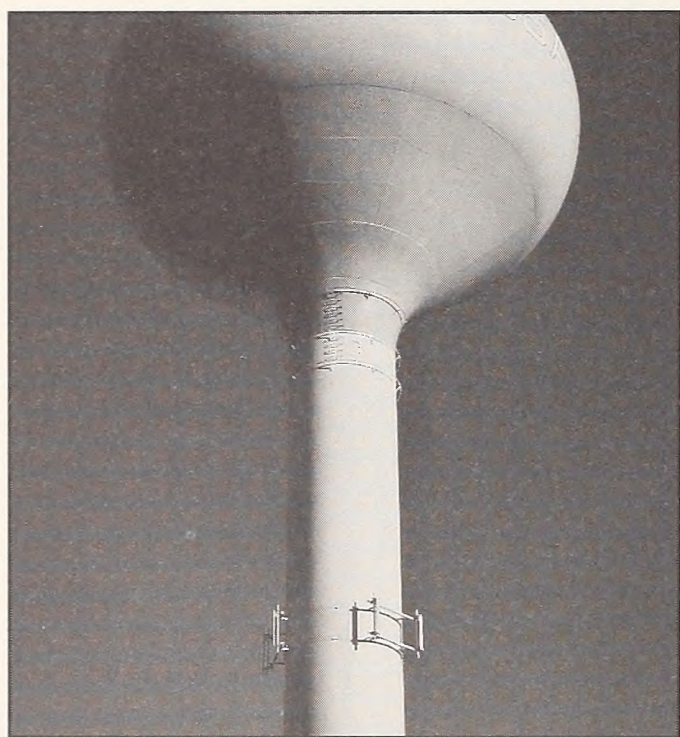
As with any radio system, the network signal emanates from antennas. Driven by the actual transmitter equipment located in the equipment shed, the antenna is the point at which the radio energy is transformed into the airwaves that make up wireless service. Because these are two-way systems, “receive” antennas are also located so that the system can hear the return conversations from the customer’s handset. Several equipment manufacturers provide wireless carriers with a number of antenna options. By using different antennas, carriers can customize the radio signal depending on the needs of the network at that particular site. The transmit and receive antennas themselves can take several different forms, but typically will be up to 6 feet in length and up to 6 inches in diameter (for cylindrical configurations). Panels which resemble fluorescent light fixtures are another configuration commonly used.



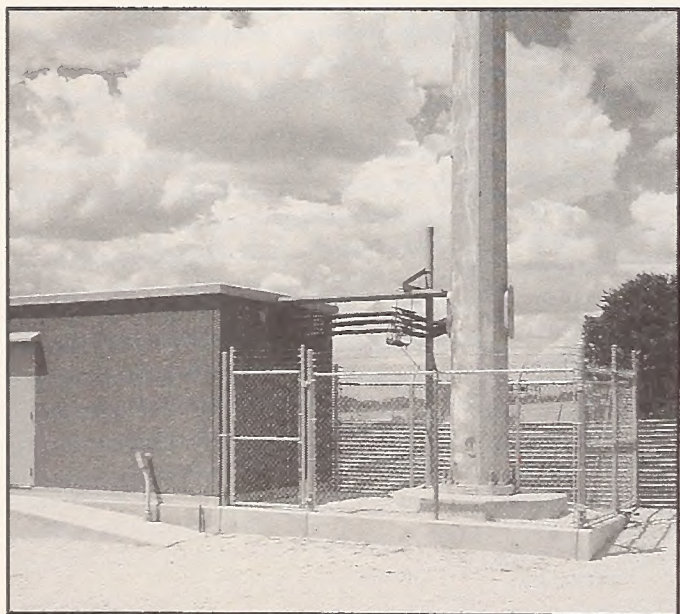
Source: Andrew Corporation



Source: AT&T Wireless Services



Source: Andrew Corporation



Source: Andrew Corporation

Support Structure

The antennas need to be located at a sufficient elevation above the terrain to illuminate the service area. When existing structures provide for a site that is higher than the surrounding terrain, wireless antennas will be mounted on them. Such structures include water towers, broadcast radio towers, building tops, or natural features such as mountains. In areas where no suitable support structure is available, a tower must be erected. Typically, such towers do not exceed 300 feet in height, and are more often in the 100-200 foot range to facilitate frequency re-use (*See Chapter 4.A. for a description of the re-use concept*). There are essentially two types of towers: *guyed* (supported by guy wires) and *self-supporting*. A monopole is a slender version of a self-supporting tower.

Wireless carriers have demonstrated considerable ingenuity in adapting their siting requirements to meet the needs of a particular site. In urban settings, antenna equipment has been integrated into a variety of "stealth" antenna sites including church steeples, mall signage, building ornamentation and such. In more rural settings, antennas have been disguised as indigenous trees or cactus, or otherwise made to blend in with their surroundings.

Equipment Housing

The tower and the antennas are just part of the entire cell site. The antennas are connected via coaxial cable to the radio transmitters and receivers, which are housed in a small, unstaffed equipment shelter at the base of the support structure. These buildings, specifically designed to protect the equipment from the elements, typically have a footprint of about 15x20 feet and are 8-10 feet tall. In addition to containing the base station transceivers, these buildings may contain an emergency generator fueled by diesel, telephone equipment, air conditioning and heating equipment, alarms, halon or similar fire suppression system, and other ancillary equipment associated with the operation of a cell site. Of course, these structures can be altered to fit the needs of either the equipment inside or the surroundings outside — not all cell sites require the exact same equipment.

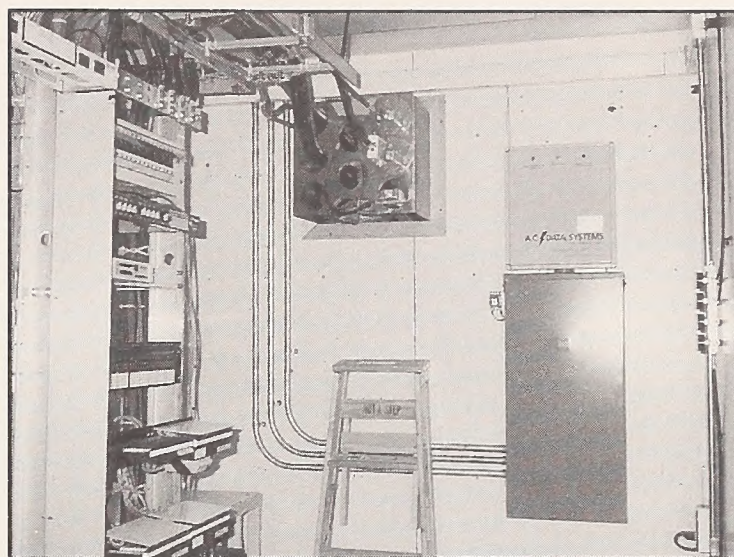
Utility Connections

The radio signals are converted to regular telephone signals and carried back to the Mobile Switching Center via conventional telephone lines — often fiber optic cable — wherever these are available. In remote locations, point-to-point microwave systems may be used to carry the

signal back to the Mobile Switching Center. In this case, the cell site must also be capable of housing a microwave antenna and its attendant equipment. In addition, utility power is used to run all of the electronic equipment located in the equipment structure. A self-powered generator is usually reserved only for power outages.

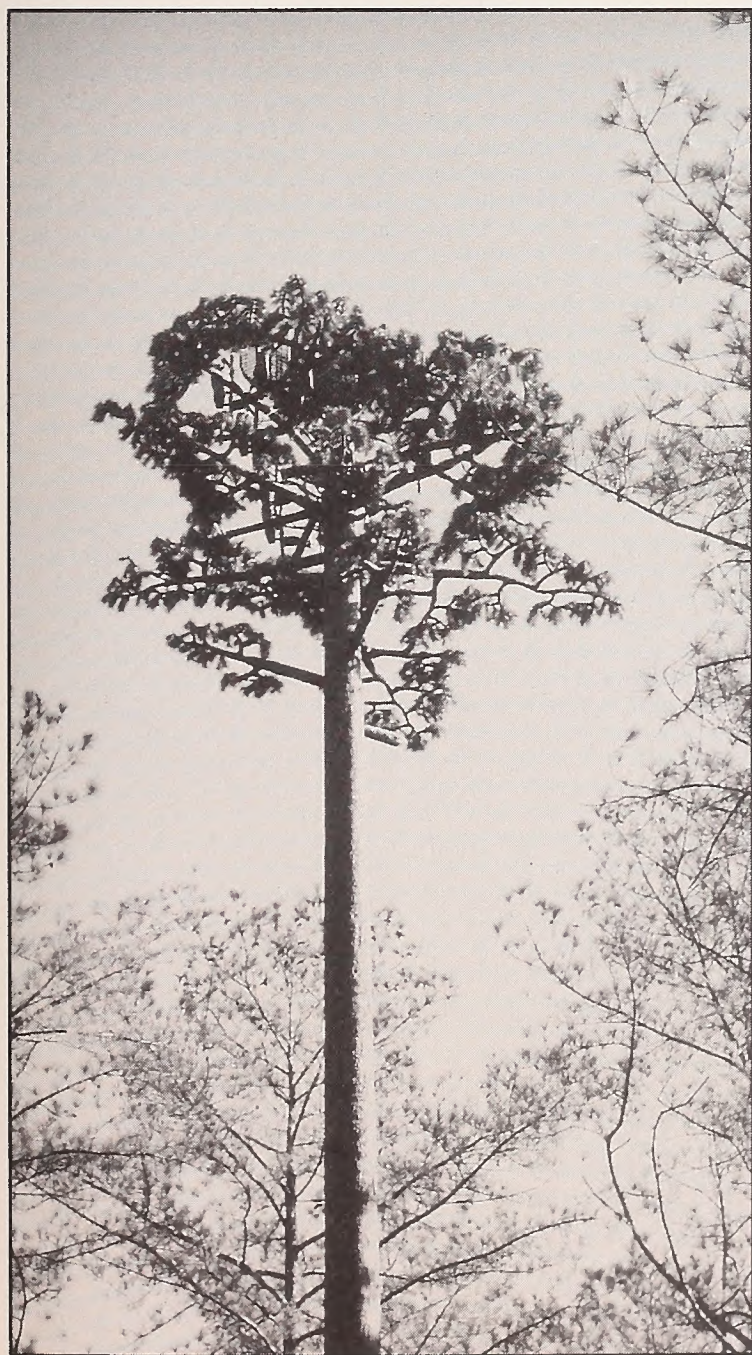
Other Components

This discussion necessarily simplifies the “typical” cell site. Given different site needs, different components are used. However, most sites will include security fencing around the equipment shed, and if necessary, around the support structure. Also, the site will need to be accessible by a well-graded or paved road.



Source: CommNet Cellular

Two Examples of Visual Mitigation



Source: Valmont Industries



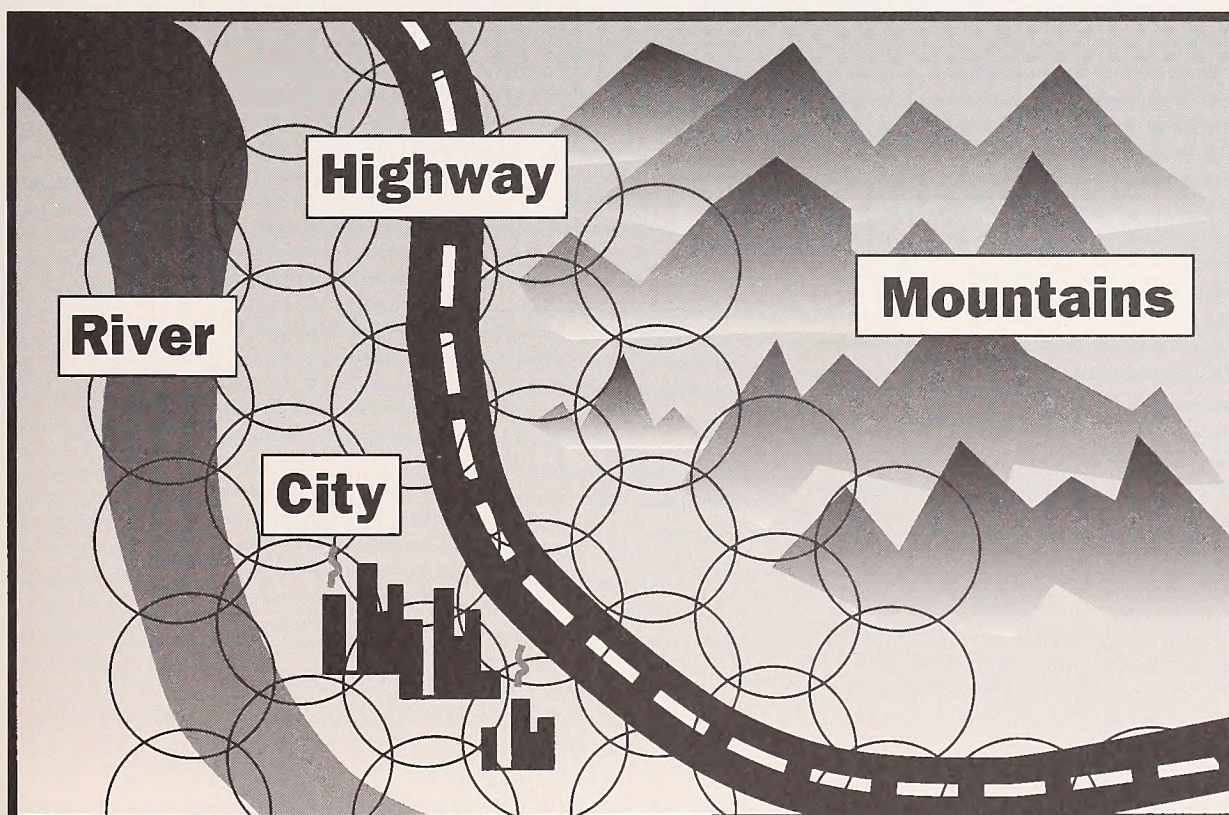
Source: Valmont Industries

The Site Selection and Development Process

A. System Design Drives Site Selection

Cell sites are not stand-alone transmitter locations. Instead, the location of each site affects and is affected by the location of all other sites in a wireless system. Each site's coverage slightly overlaps the coverage of its neighboring cells. In a perfectly flat world with no obstructions, a wireless systems would consist of a regular repetition of identical, circular coverage areas in a hexagonal grid.

The need for a site can arise from several places. Often, a wireless company's engineering staff identifies a "coverage hole" in the system — another site is needed to fill that gap. These gaps can develop as a result of high demand on a particular site, challenging topography, or simply, the physical limitation of the radio signal. Of course, it doesn't always take an engineer to discover a coverage hole; the customer is often quite willing to notify his or her carrier of a dropped call.



Engineers designing a wireless system overlay a grid pattern to determine cell site locations

B. Factors Driving System Design

The factors driving the design of a wireless system, and therefore the locations of the cell sites, are generally as follows:

Regulatory Requirements

Coverage requirements imposed as a condition of the award of the license to build and operate a wireless system must be met. As discussed earlier, there are population coverage and geographic coverage requirements associated with these licenses. (*See Chapter 2.F.*)

Physics Requirements

As noted earlier, different frequency bands (800 MHz vs. 1900 MHz) have different propagation characteristics. Thus, the design grid for a PCS system in the 1900 MHz band will be based on smaller coverage areas than the design grid for a cellular or ESMR system in the 800 MHz band.

Topography

Radio waves behave like light, so in general all radio communications must be within line-of-sight of the cell site. Systems constructed on hilly or mountainous land require more sites than on flat land because the signals are frequently blocked by the terrain.

Population Density

In areas of dense population, techniques such as cell-splitting and sectorization are deployed to ensure that sufficient capacity is available. Thus, more cell sites may be required to serve a very densely populated area even though adequate radio coverage is attainable from fewer sites. In areas of sparse population, cell sites are placed as far apart as possible to provide quality service, because capacity is seldom an issue.

Business Plan

Population counts, household income, automotive traffic counts and other demographic data are used to create a business plan which, in turn, helps drive the system design. Based upon their business plans, carriers may seek to position a site to serve an area where relatively little traffic is generated because coverage in that area is deemed to be of strategic value to them. Other carriers may or may not choose to cover the same area; again, depending upon their business plans.

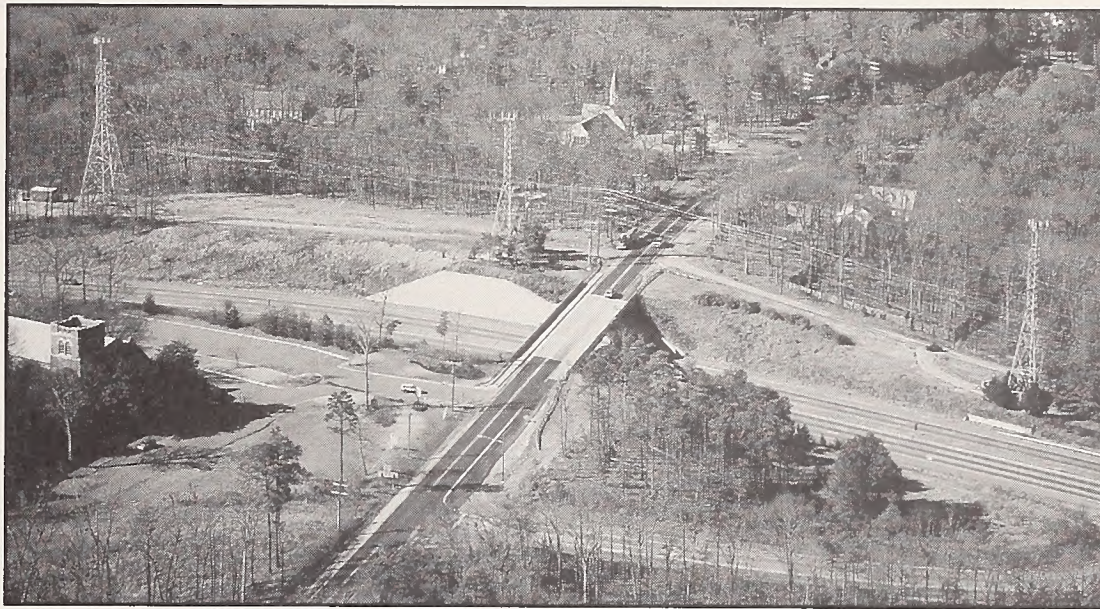
C. Factors Driving Site Selection

Terrain

Where possible, a wireless company will look to place antennas on an elevated location. This may mean a hill or rise that is significantly higher than the surrounding terrain. Similarly, if a particular site affords a “good look” down a valley or above a basin, the company will attempt to locate its facilities there. Again, wireless signals rely on “line-of-sight” to reach the customer.

Access

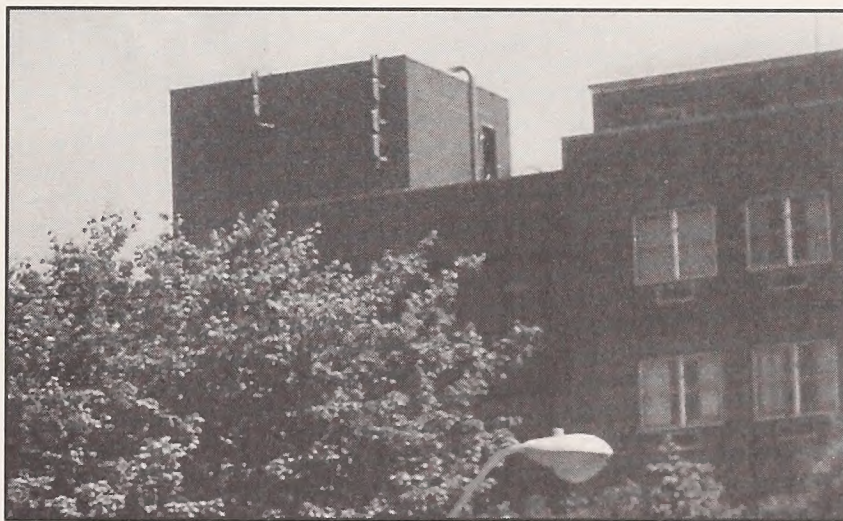
Although many factors contribute to the location of a site, access to utilities, roads, and telephone lines are among the most important. With few exceptions, the equipment must draw utility power, and proximity is sought to minimize both costs and disruption. In fact, some companies locate their antennas on power poles themselves. (See photo, at right)



Source: FWT

Existing Structures

Wireless companies will always look first to an existing structure to locate their antennas. Common structures include water towers and building rooftops. Any number of structures can be used, provided they are at a sufficient elevation and are able to be assimilated into the existing network.



Source: AT&T Wireless Services

Regulatory Approvals

Antenna sites are subject to certain regulatory agency and other approval. First, the wireless company must get permission from the property owner. This negotiation often involves a rent payment for use of the land or access to an existing structure. Furthermore, local zoning authorities usually weigh in on a wireless operator's application.

Airspace obstructions are regulated by the Federal Aviation Administration (FAA). Antenna structures which are taller than 200 feet above ground level and towers which are to be located within certain distances of airport runways must be *cleared* by the FAA and *registered* with the FCC. This consists of filing a FAA Form 7460-1 with supporting documentation. When this form is received, the FAA will perform an analysis with regard to nearby airport surfaces and approaches, as well as studying the impact of the proposed frequency usage on FAA communications. If no negative impact is found (as is usually the case), the FAA will issue a Determination of No Hazard. The FAA's analysis and eventual requirements for a structure are governed by FAA Advisory Circular AC-70/7460-1, *Obstruction Marking and Lighting* and Advisory Circular AC-150/5345-43, *Specification for Obstruction Lighting Equipment*.

If the FAA requires that a tower meet visibility requirements owing to its proximity to an airport, then the tower is either marked with beacon lights, painted in alternating colors of aviation white and orange, or both. Painted surfaces are inspected on a regular basis to check for fading. All towers with aviation warning lights are required to be equipped with emergency lights and backup power systems. Comprehensive logs are kept on all inspections, maintenance, system failures and bulb replacements. The site owners have the primary responsibility for maintaining the prescribed painting and lighting of the structure, while a secondary responsibility is imposed on the individual licensees.

The National Environmental Policy Act (NEPA) is the basic national charter for protection of the environment. It requires all Federal agencies to implement procedures to make environmental consideration a necessary part of an agency's decision making process. Specifically, NEPA and the regulatory guidelines established by the Council on Environmental Quality (CEQ) which implemented the Act (40 C.F.R. § 1500) require all Federal agencies to take into account environmental consequences when making decisions which could be considered "major Federal actions." As such, all Federal agencies have implemented agency-specific NEPA regulations. These regulations must be considered in the antenna siting process.

The FCC requires an environmental review of its licensees' actions; each licensee must consider the environmental effects of a proposed antenna site and, if necessary, complete and file an Environmental Assessment for the Commission to review. Additionally, the FCC recently passed rules which place much of the structure's registration and regulatory compliance obligations on the owner of the structure, and not just on the licensee. Thus, there is a certain level of cooperation between the wireless carrier and the site owner (or its manager) when antenna site construction is being considered.

Bureau of Land Management

In addition to CEQ Regulations, BLM's NEPA guidance consists of one Manual Chapter (MS 1790) and a NEPA Handbook (BLM Handbook H-1790-1). As a BLM NEPA principle, all BLM NEPA documents — environmental assessments (EAs), findings of no significant impact (FONSI), and environmental impact statements (EISs) — and their supporting records make up BLM's NEPA analysis.

For BLM public land use, NEPA compliance is a condition required for authorization. The decision or action must conform and be consistent with existing land use plans. All NEPA documents (and supporting records) produced in support of a resource management decision will update, maintain, and modify BLM's existing NEPA analysis base.

United States Forest Service Interim Directive

On July 29, 1997, The U.S. Forest Service issued its Interim Directive (ID 2709.11-97-2) in response to President Clinton's Executive Memorandum, the Telecommunications Act of 1996, and the resulting GSA Guidelines. (See *Chapter 1.D.*) The Interim Directive addresses five main issues:

- 1. Initial Screening.** The initial screening process encourages co-location of existing facilities, in part to avoid further agency approval. The directive reads, "under the agency's policy for communications uses, the [site applicant] would not need an agency approval for co-location with existing authorized facilities; after securing permission from the facility owner or facility manager, the [site applicant] could immediately locate equipment at the facility and proceed with operations." When co-location is not possible, the authorized officer has 60 days to notify the site applicant whether the Forest Service will accept the proposal, based on the following criteria: (a) consistency with laws, regulations, orders, and policies governing National Forest System lands, (b) consistency with the approved National Forest land and resource management plan, or the feasibility of modifying the site applicant's proposal to be consistent with such a plan, (c) no serious or substantial risk to public health and safety, (d) no unreasonable conflict or interference with administrative or other authorized use of National Forest System lands. The directive states, "proposals that do not meet all of the minimum requirements shall not be accepted for further evaluation and processing. The authorized officer shall notify the [site applicant] of the reason(s) why the proposal will not be accepted for further evaluation and processing."
- 2. Processing Applications.** If the site applicant's proposal meets the minimum requirements, the authorized officer will notify the applicant: (a) that the receipt of the application does not constitute approval for the applicant, (b) that additional information (studies, etc.) may be needed to render a final decision, (c) of the estimated time frame when a decision will be made, (d) that the applicant may be required to pay some or all of the costs of processing the application.
- 3. Decisions on Applications.** The interim directive states, "the authorized officer may decide to approve the proposed use, approve the proposed use with modifications, or deny the proposed use. The authorized officer shall notify applicants in writing of approved applications and should provide the authorizing document (lease or permit) at this time. The applicant has 60 days in which to return the signed authorization. Applications that are denied are to be returned to the applicant with a written explanation for the denial.
- 4. Fees.** This information is found in Chapter 30 of the USFS *Special Uses Handbook*.
- 5. Reporting to General Services Administration.** The GSA requires that all agencies prepare a one-time report to document the number of antenna siting requests and action taken. Regional Foresters are to provide the following information to the Washington Office, Director of Lands, by January 4th, 1998, for the period June 16, 1997 through December 17, 1997: (a) number of antenna siting requests for mobile services antennas, (b) number of siting requests approved, (c) number of siting requests denied. For requests denied, include a narrative statement or copy of the formal written denial with the supporting reasons for the denial.

The USFS Interim Directive was issued by Janice H. McDougale, Associate Deputy Chief, and expires on January 29, 1999.

Site Approval and Authorization Process

A. Pre-Application and Preparation of Materials

After a wireless carrier has determined a possible location for an antenna facility, and before the carrier meets with a Federal land manager, both parties must make appropriate preparations. Prior to the meeting, the carrier should collect materials regarding:

- **The need for this specific site.** These materials may reference any of the reasons discussed in Chapters 6.B. and 6.C., including topography, certain elements of a carrier's business plan, nearby traffic patterns, system capacity or signal propagation.
- **Other siting options considered.** The service provider should note other site possibilities in the surrounding area, and demonstrate why those potential sites were rejected.
- **Co-location assessment.** The carrier should be prepared to comment on their ability to co-locate with other providers at a given location. Of course, co-location remains only a viable option in a few specific instances, and a number of factors (*e.g.* type of support structures available, potential interference concerns) must be explored before considering co-location. The carrier should bring materials describing potential options where applicable.
- **Other considerations.** To the extent possible, the carrier should indicate the given site's relation to potential future sites. That is, the carrier might provide the Federal land manager with an idea of their future site needs. This allows the agency to allocate resources for future site requests.

Wireless service providers will provide materials that are similar to the information that they provide to local zoning officials when applying for a site in certain municipalities.

B. Preparation of Materials by Agency

The Federal land manager should also prepare for these initial negotiations by collecting the following information:

- **Existing communications sites.** Where possible, wireless carriers prefer to locate antennas on existing structures. If agencies can direct the carriers to existing communications sites (i.e. those already used by the agency), then new construction may be avoided.
- **Available access to ancillary physical plant.** As discussed in Chapter 6.C., antenna sites rely on access to roads, and power and communications lines. To the extent that these locations can be identified within the potential site area, disruptions to the surrounding areas may be minimized.
- **Unique conditions or restrictions applicable to the property.** These restrictions might include limited access to specific parcels of land, or known historical and environmental factors. The agency should provide the carrier with a list of these conditions or restrictions and should be able to clearly identify any locations on a map.
- **Appropriate forms and contact information.** In addition to all application forms, the agency should identify the personnel which will be making the approval decisions.

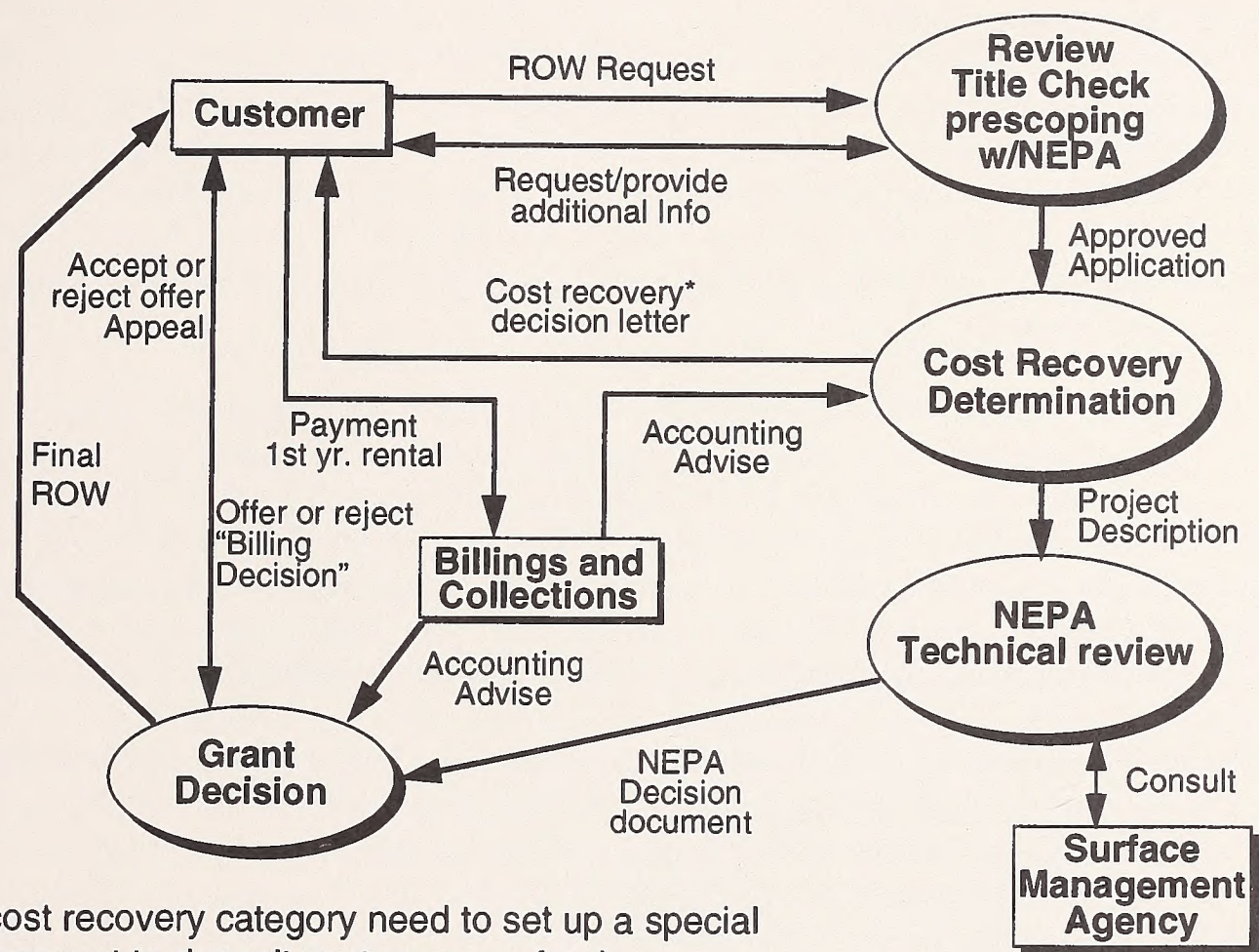
The intent in collecting these materials prior to any formal meeting is to clarify what the carrier should expect, and what the land manager should expect. Both parties should strive for full disclosure of relevant materials prior to commencement of the process.

The Bureau of Land Management has created a flow chart for its current Right-of-Way application process (See "*Current ROW Process for Minor Categories*" chart). Additionally, the BLM has identified the following steps for the application process:

- Applicant contacts BLM to arrange a pre-application meeting.
- Applicant completes a draft of the SF-299 application form.
- BLM holds pre-application meeting, identifies land-use constraints, determines processing fees, identifies and requests additional information needs, i.e. Plans of Development, maps, surveys, etc.
- Applicant finalizes application and submits it to BLM.
- BLM processes application:

Serialize application, assemble case file, initiate necessary Clearance/Inventory requests, consult with affected interests, perform all inventories/clearances/field work, complete reports/NEPA compliance/stipulations, decide to approve or deny application, approve Decision Record, draft Right-of-Way grant, determine rent/monitoring fee, prepare and mail decision letter.
- Applicant accepts stipulations, signs and returns grant with rent/monitoring fees.
- BLM signs the Right-of-Way grant.
- Holder notifies BLM of planned construction start and arranges pre-construction meeting.

Current ROW Process For Minor Categories



*Major cost recovery category need to set up a special account to deposit cost recovery funds.

C. Coordination

Typically, a wireless company will approach a specific agency in its efforts to locate an antenna site. This one-on-one process is a result of the competition that characterizes the wireless industry. Carriers are reluctant to work together when addressing a competitive issue such as service coverage. However, in particularly difficult situations, the Federal agency may request the separate carriers to work together with the agency to expedite the process. This might include a meeting between local agency officials and representatives from all the region's wireless carriers. *Again, these coordinated efforts must be initiated by the Federal agency.*

Of course, similar cooperation is expected of the separate Federal agencies. Often, carriers work with one agency, only to discover another has relevant jurisdiction over a portion of their site application. The Federal agencies should coordinate their activities, to the extent possible, so that the application process remains as quick and smooth as possible.

D. Forms Required for Application

Bureau of Land Management

Standard Form 299, APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS AND FACILITIES ON FEDERAL LANDS. The first two pages are actual application information, the third page asks for supplemental information, and the fourth page contains form instructions. The form is Office of Management and Budget-approved (OMB No. 1004-0060) and was issued in March 1994. In the upper right-hand corner, the form shows Expires: June 30, 1995; however, this is the current form and is accepted by BLM offices as the appropriate right-of-way application. An electronic version of the form with Internet downloading capabilities is currently in development.

Plan of Development. A plan of development (POD) is supplemental information offered by an applicant to augment a right-of-way application. PODs are encouraged by BLM for use authorization processing purposes. As a supporting record executed by the applicant, a POD prescribes the project's planning, design specifications, mitigating measures, and standards on what is being proposed and planned with each project. Plans of Development shall be always required at the application stage when (1) toxic substances, as defined in the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et.seq.) are proposed for use or storage, (2) an environmental impact statement is necessary, and/or (3) the project is "major" in scope.

The POD process should improve applicant/Bureau coordination, foster efficiency, reduce costs, and provide for the necessary level of resource protection. A POD formulated prior to the NEPA process provides a relatively complete description of the proposed action and applicant-suggested design features which may mitigate potential impacts. *The information provided in a POD may greatly reduce the environmental documentation needed during the project's environmental analysis for NEPA compliance.* Additionally, a well developed POD may also minimize agency mitigating measures to be prescribed for the potential grant holder. Hence, the amount of information manifested in a project's complete POD has a direct relationship on the NEPA documentation (and time) necessary for BLM to reach a decision concerning the proposed action.

The BLM Handbook H-2801-1 is an excellent guide for POD development. It is applicable to a wide variety of use authorizations and is obtainable at all BLM offices. Consultation and coordination between the Bureau and applicant/holder are essential to the effective preparation of the plan of development.

United States Forest Service

FS-2700-3, Special Use Application and Report. There are three parts to this application form. Part One requests application information — uses, alternatives, effects, etc. Part Two requests supplemental information and Part Three (completed by the Forest Officer) contains the Report on the application.

Both the BLM and the USFS also have standard lease forms. Sample copies of the required forms and leases are included in the Appendix.

E. Authorization Timetables

BLM Customer Service Standards

The BLM's 1989 *Annual Performance Plan* states in part, "The BLM has placed customer service as a top priority - consistent with the Director's crucial goal of being good neighbors." The performance standard, to determine if right-of-way customers are receiving quality and timely service, was established in 1989. BLM Manual 2801.35B2b states:

"Low impact proposals, qualifying as NEPA categorical exclusions or requiring an environmental assessment, should be processed within 30 days. If processing of an application and issuing the right-of-way grant or temporary use permit is to take more than 60 days, the authorized officer shall inform the applicant in writing of this fact. The authorized officer shall provide the applicant with a reasonable explanation for the delay and an estimate of when the processing of the application may be completed."

The BLM is confident this customer service standard is reasonable. Right-of-way applicants are provided Customer Comment Cards which are reviewed at Field Offices and at the Washington Office. On November 1, 1996, BLM right-of-way processing personnel were issued Memorandum 97-18, which gave them very specific instructions on how and when to provide customer comment cards. Several times per year, the quality of service provided to BLM customers is reported to the Director of the BLM.

United States Forest Service

For a review of USFS time guidelines contained within its Interim Directive, please refer to Chapter 6.C.

Project Implementation & Construction

A. Site Construction

The placement of an antenna site can take up to 40 weeks to complete. The process is well-organized and each step requires time and care. If one portion is incomplete the entire process could be delayed. *The time taken for each site's approval process and eventual construction can vary; this timeline is merely a rough guideline:*

Initially, the wireless carrier's radio engineering staff provides its real estate department with a search area for a potential antenna site. This area, often called a "search ring," has been researched by the radio engineering group, taking into consideration the particular site within the overall system. During the next three weeks, the teams familiarize themselves with the area by studying maps, visiting the actual site locations, and meeting with the appropriate approval body. (See Chapter 7.A.) In cases where that approval body is also the landowner, leasing negotiations may then begin. In instances where local zoning officials must be consulted, the zoning approval process begins at this time.

If these initial steps proceed smoothly, then by the end of the week 7, the site search is completed and coordinates are chosen.

Environmental studies are conducted in this initial site selection process. With these studies, the service provider must ensure that the effects of the proposed site will not harm the environment surrounding the area. The area's soil, vegetation, wildlife, and historic or cultural significance, must be considered. Visual aesthetics are often the most difficult and controversial environmental concerns. The FCC reviews the environmental assessment and approves the site if all environmental effects have been evaluated. Also, a land survey must be completed to confirm the location of the site, and soil tests must be conducted to determine the viable support structure for the antennas.

During weeks 12 and 13, the site plan drawings are completed and the zoning applications are filed. Approaching week 17, purchase orders are issued for the site components, including the equipment shelter, support structure materials, and antennas. Given no opposition or procedural delays, weeks 21-25 should bring approvals from the FAA and zoning boards. This can be a particularly crucial period, as the site choice is now subjected to public opinion. All pertinent research has been completed on the site, and the public — through a zoning board or other mechanism — takes into account every



Source: Valmont Industries

detail. Some public hearings may be necessary if the public does not readily approve of the location. The FAA ensures that the site will be visible from the air by checking the paint color and lighting, if necessary.

Construction may begin during week 29. Facility engineers, architects and the contractors work closely during the construction in order to consider terrain and aesthetic issues. *The site can be completely built in approximately six weeks before it is inspected, barring any challenges such as weather or underground obstacles.* The contractors consider many factors: the lay of the land, property boundaries, access to utilities, the kind of tower to be constructed, environmental issues, and where to store materials. The local police and fire departments are notified about the site during the construction phase in case of any unforeseen emergencies. Once site construction is completed, the equipment shelter is fully connected to all required utilities, and the radio equipment is tuned and readied for commercial service.

More approvals from local jurisdictions and the FCC must occur before the site can be placed in service. A local building inspection is required and a certificate of occupancy is issued. The local jurisdiction must give a final approval of the site construction. Finally, the provider notifies the FCC (after filing the appropriate forms) that the site is ready for service. If everything is in place, the FCC will grant approval and only then is the site activated.

(Acknowledgment: TEA Group)

B. Maintenance of an Operational Site

After a cell site is brought into service, there are certain procedures that must be regularly conducted to ensure its continued operation. Basic, routine inspection and maintenance help assure ongoing compliance with FCC and FAA regulations and the continued operational and structural safety of wireless antenna sites. These sites are inspected on a regular basis to ensure that they remain sturdy; that they are standing straight; that there are no loose, rusting, fraying or missing parts; that the foundations have no cracks or deterioration from settling; and that all structural components are free of cracks, bends, faulty welds and rust. Usually performed monthly, the site's physical maintenance may include:

- Inspection of mechanical systems
- Grounds and surrounding area maintenance
- Access maintenance, including road re-graveling, snow removal and grading improvements
- Tower and antenna maintenance
- Utility coordination — both energy and telecommunications
- Environmental response
- Equipment repairs or replacement
- Tower lighting and painting improvements
- Safety compliance
- Local permit compliance

The wireless carrier must also conduct “financial maintenance” of site, which might include:

- Property tax filing and payment
- Rental payments
- Rent escalation/adjustment calculations
- Local/State regulatory permit renewals
- Rent collection on a multi-user site
- Maintenance expense allocations
- Federal permit compliance/filings
- Utility billing processing and payments
- Debt service
- Asset tracking

Of course, this level of routine maintenance may need to be augmented in certain situations. Non-routine maintenance may need to be performed in the event of an emergency (such as continuous severe weather) or under less urgent scenarios, such as a system-wide software update.

(Acknowledgment: TEA Group)

C. Decommissioning the Site

In the unlikely event that a carrier removes an antenna site, the necessary steps are taken to restore the property to its original state. This generally includes removal of all equipment and restoration of the property's grounds and surrounding areas. Typically, the level of restoration will be negotiated during the initial approval process. The removal of an antenna site is, however, an unlikely prospect.

Frequently Asked Questions

A. Why can't the same sites be used?

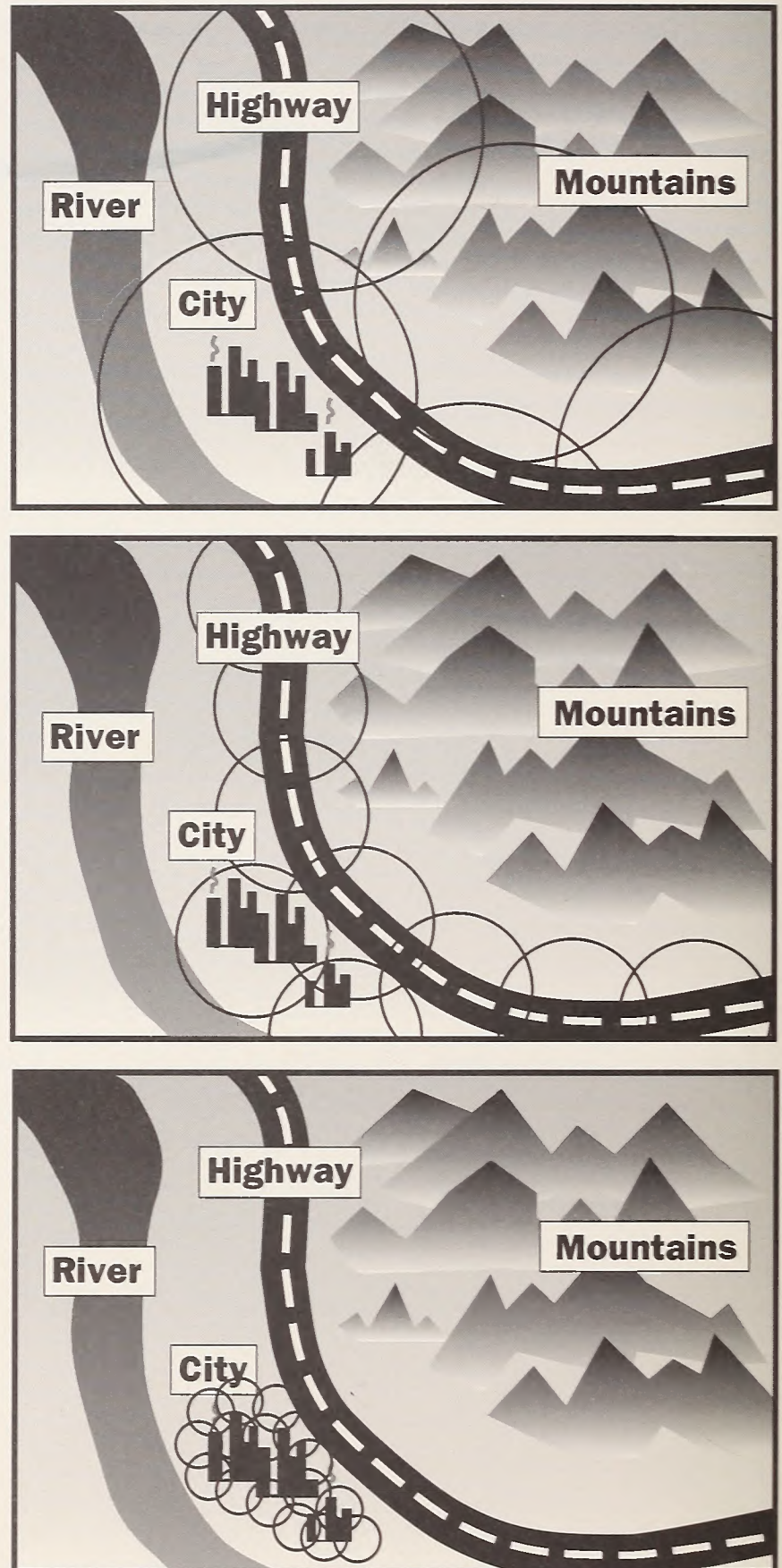
Chapter 2.F. pointed out some of the differences among the various wireless services. These differences are presented in the table below:

	Cellular	PCS	ESMR
Geographic Area	306 MSAs 428 RSAs <i>(Two licenses awarded to each market)</i>	51 MTAs <i>(Two licenses)</i> 493 BTAs <i>(Four licenses)</i>	<u>Currently:</u> carrier-defined geographic service area. <u>Future:</u> 51 MTAs, 175 EAs
Spectrum Location	800 MHz	1900 MHz <i>(Requires more antenna sites to serve same area as cellular or ESMR)</i>	800/900 MHz
Build-out Requirement	Based on area: <i>(how much of the land area in licensed area is served)</i>	Based on population: <i>(how much of the population in licensed area is served)</i>	Based on population: <i>(how much of the population in licensed area is served)</i>

The differences among the services' physical and regulatory environments lead to differences in design strategies. These different system design strategies produce a different siting plan that may or may not overlap with other service providers' siting plans. Even if a PCS carrier had access to every cellular or ESMR site in a given market area, more sites would still be required owing to the more limited propagation characteristics of the PCS spectrum. The chart below depicts how three different operators might take three different approaches to the layout of their systems. As can be seen, in many cases sites overlap, but in some areas no overlap occurs:

There are other reasons that limit the placement of more than one antenna set on a given support structure. Physical limitations of a tower are often the primary reasons. Some structures, including many monopoles, are designed only to support one antenna array. A greater load would increase the chance of the structure's collapse, particularly during severe weather. Ensuring a structurally sound antenna site is the carrier's first priority. Other equipment can support two, and maybe three antenna sets; however, if this decision is made, another structure form may need to be selected. Co-location implies a stronger, and thus often larger, support structure. Often, land managers must weigh the difference between co-locating equipment and opting for a more unobtrusive site.

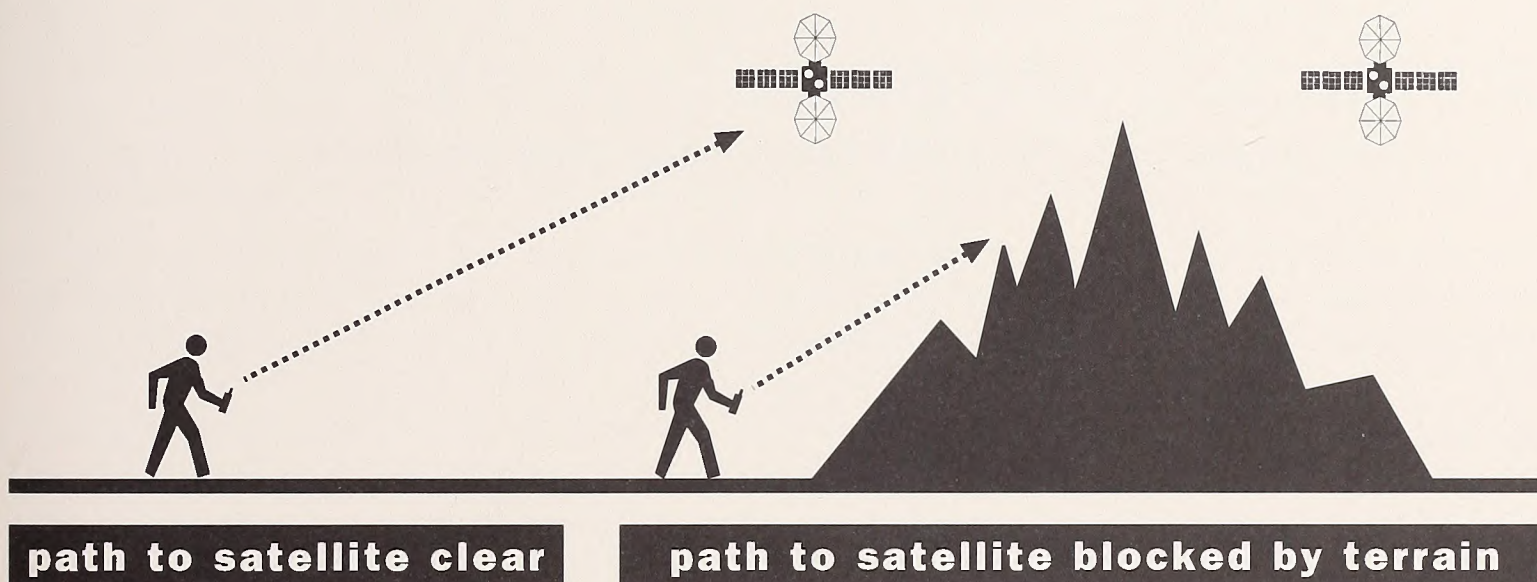
Additionally, co-location can be restricted by signal interference concerns between antennas. The antenna arrays require a specific distance between them to ensure no interference. This separation depends on the power levels of each antenna, the transmission technology employed, and the specific service's location on the spectrum. All of these factors must be precisely coordinated, or signal interference will preclude co-location.



Different carriers have different network plans

B. Why can't all wireless service be provided by satellite?

Satellite telephone services in commercial operation today offer global availability, but there are some shortcomings relative to terrestrial-based wireless services. First, current availability of satellite phones has limited the market to high-end, expensive service. Additionally, the chief shortcoming is their ability to provide consistent coverage over all terrain conditions. All existing satellite services utilize geo-stationary satellites as their antenna sites. These satellites orbit the earth around the equator some 22,300 miles up in space. This creates issues of "look-angle," which is the ability to "see" the satellite from a given position on the earth's surface. On flat terrain, look angle issues are not a problem. But, in hilly and mountainous terrain, the signal will often be blocked by terrain. This issue becomes more of a problem in northern latitudes, as the earth's curvature increases the probability of an obstacle. Because the satellite orbits the earth above the equator, as the mobile unit moves farther north, its antenna must be directed increasingly closer to the horizon. Direct Broadcast Satellite (DBS) television systems, such as DirectTV and Primestar, illustrate this fact. At northern latitudes, their home-based dish antennas are pointed at levels nearly parallel to the ground.



Several satellite systems will be coming into service within the next few years that will offer wireless communications services in areas not easily served by terrestrial-based wireless systems. Their chief advantage is the vast geographic coverage that they will provide. These systems will deploy a number of satellites in low earth orbit to overcome many of the look-angle effects described above.

C. Will this interfere with my TV reception or cause other interference?

The FCC licenses wireless transmitters to emit power only in a given frequency band. The transmitter must minimize its production of “out-of band” signals, or else interference can result. To prevent interference and the possibility of FCC fines, the transmitter is carefully tuned to ensure compliance with the applicable signal limits. Furthermore, manufacturers employ certain techniques to prevent “in-band” interference with electronic equipment.

In October 1994, a group of scientists gathered to discuss wireless transmission base station facilities. During this symposium, entitled “Federal Focus National Symposium on Wireless Transmission Base Station Facilities,” scientists concluded that radio waves from a base station are usually much too weak (by the time they reach ground level or a nearby residence) to affect such items as radios, televisions, telephones, answering machines, stereo systems, onboard automotive systems and biomedical equipment. Each of these items was addressed separately, and the same conclusion was drawn for each. Strong radio waves can cause interference, but the likelihood of interference to electronic equipment from base stations is extremely remote.⁴

D. What does the public perceive as health risks associated with wireless devices?

Several issues concern the public about the use of wireless telephones — the health and safety of wireless base station antennas and handsets, hearing aids and pacemakers. Much research has addressed these concerns along with standards for the industry to follow. Below, each issue is discussed separately.

Wireless base station antennas

Wireless base station antennas are not a public health risk. They meet standards for exposure to radio-frequency (RF) energy and are subject to periodic inspection and government regulation. In January 1993, the Federal Communications Commission (FCC) reported: “Measurements that have been made around typical cellular base stations have shown that ground-level power densities are well below limits recommended by currently accepted RF and microwave safety standards.”

As required by the Telecommunications Act of 1996, the FCC issued an order on August 1, 1996, to update its standards on RF emissions. As anticipated, the Commission’s new rules are a blend of the guidelines contained in the 1992 ANSI/IEEE (American National Standards Institute/Institute of Electrical and Electronic Engineers) and the 1986 NCRP (National Council for Radiation Protection & Measurements) guidelines. The new rules have been endorsed by other federal agencies responsible for health and safety, such as the Environmental Protection Agency, the Food and Drug Administration, the Occupational and Safety Health Administration, and the National Institute for Occupational Health.

The typical height of a wireless antenna on a tower is 100 to 200 feet. The antennas are generally designed to radiate very little power directly downward, and exposure to electromagnetic energy decreases rapidly with distance. Therefore, exposures at ground level tend to be small. Furthermore, transmission power levels of wireless antennas are very low. A cellular antenna emits about 100 watts or less of power per channel, and often as little as 10 watts per channel in urban areas (PCS microcell antennas emit from .25 to 10 watts), while a television tower emits up to 5 million watts and an FM radio station tower up to 100,000 watts.

Handsets

Low powered cellular and PCS mobile devices must comply with the safety standards for radio frequency emissions issued by the FCC. These standards were recently updated in August, 1996. Under the new rules, the FCC requires an evaluation of all devices by the manufacturers for compliance with the Specific Absorption Rate (SAR) prior to receiving FCC approval. These evaluations ensure that phones operate within the FCC's safe exposure limits.

Even though the highly publicized law suit which made unsubstantiated claims about a link to brain cancer was later dismissed, questions about the intrinsic safety of portable phones remains a public concern. To address those public health concerns, the industry is supporting a long-term independent research program.

In 1993, the industry committed \$25 million to a focused five-year program of scientific inquiry on health effects of wireless phones. Wireless Technology Research, L.L.C. (WTR) was established as an independent entity, responsible for developing, managing and implementing a rigorous scientific research effort within a defined time frame. A research agenda, developed in consultation with over 150 scientists worldwide and reviewed by Harvard University's School of Public Health, Center for Risk Analysis, provides the blueprint for the research to be undertaken. In addition, a rigorous peer review mechanism is in place for all stages of studies undertaken by WTR. The research program undertaken by WTR is a carefully considered and focused effort. The process has been constructed to generate the best — and most objective — research possible. To date, there is no evidence of bio-effects danger from the use of wireless phones, but the research continues. This on-going surveillance of emerging scientific information is a critical part of the industry's commitment to consumer safety and to address the concerns customers may have about wireless products.

Hearing Aids

The digital electronics revolution brings many benefits to consumers, including advanced wireless communications. However, the pulsed nature of all digital transmissions does have the potential to interfere with other electronic devices. This interaction is not unusual and has happened with other new technologies. Both manufacturers and service providers have demonstrated that these compatibility problems are solvable.

Under most circumstances analog phones do not interfere with hearing aids. Some digital phones may interfere and cause a buzz when held close to some hearing aids. For interaction to occur, the distance between the phone and hearing aid must be very short. Ways of eliminating or mitigating the problem are readily available. Different types of hearing aids offer different levels of shielding. Some hearing aids are already immune to digital interaction. This is not a public health or safety issue, but rather an issue of interaction management. The wireless service providers and manufacturers are working with the hearing aid manufacturers, audiologists and advocate groups for persons with hearing disabilities to find new solutions, other than the ones available today. Research is also being done at the Center for the Study of Wireless Electromagnetic Compatibility at the University of Oklahoma.

Pacemakers

Several recent studies have raised concerns that some digital wireless phones can interfere with some cardiac pacemakers under certain conditions.

The greatest risk of interference exists when the phone is placed in direct proximity to the pacemaker (on or near the chest). Although interference has been observed in some cases, no health risks have been determined to date. This issue is similar to the cautions pacemaker wearers already must take with airport metal detectors, magnetic resonance imaging (MRI) equipment and X-ray machines, to name a few.

The wireless industry has supported multi-clinical and in-vitro (laboratory) studies on the interaction between pacemakers and wireless phones. Recommendations of these studies indicate there are short-term and long-term solutions which exist to address the interference question. In the short term, simple precautions for pacemaker patients are recommended; for long term solutions, pacemaker design with appropriate shielding and filtering techniques are recommended. The wireless and pacemaker industries will continue their inter-industry cooperation in the development of these solutions.

**It is important to note that the interaction with hearing aids and pacemakers are with wireless handsets and not base station antennas. As was discussed in the previous question, the likelihood of interference from the low power of a base station is extremely remote.*

appendix

Appendix

CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION (CTIA)

1250 Connecticut Avenue, Suite 200
Washington, DC 20036

202-785-0081 (tel.)

202-785-0721 (fax)

<http://www.wow-com.com>

(See "Antenna Siting Microsite")

Fast Facts/Infobox

Industry Affairs Group

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FEDERAL COMMUNICATIONS COMMISSION (FCC)

WIRELESS TELECOMMUNICATIONS BUREAU

2025 M Street, NW

Washington, DC 20554

202-418-0600

<http://www.fcc.gov>

<http://www.fcc.gov/wtb/antstruc.html>

Fact Sheets #1, #2

FEDERAL AVIATION ADMINISTRATION (FAA) OFFICE OF AIR TRAFFIC SERVICE

800 Independence Avenue, SW

Washington, DC 20591

202-267-3666

GENERAL SERVICES ADMINISTRATION (GSA)

Office of Real Property, Room 1300

Public Buildings Service

18th & F Streets, NW

Washington, DC 20405

202-501-0176

<http://www.gsa.gov/pbs/antenna.htm>

<http://policyworks.gov/org/main/mp/linkit.htm>

U.S. Department of Interior BUREAU OF LAND MANAGEMENT OFFICES

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- State Office
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222 West 7th Avenue, #13
Anchorage, AK
99513-7599
(907) 271-5080

Mike Haskins
(907) 271-3351
email:
mhaskins@ak.blm.gov
(907) 271-5555

ARIZONA

222 North Central Ave.
Phoenix, AZ 85004-2203
(602) 417-9500

Carol Kershaw
602-417-9235
email:
ckershaw@az.blm.gov
(602) 417-9210
(602) 417-9528

CALIFORNIA

2135 Butano Drive
Sacramento, CA
95825-0451
(916) 978-4400

Rob Nauert
(916) 979-2830
email: rnauert@ca.blm.gov
(916) 978-4610
(916) 979-2800

COLORADO

2850 Youngfield Street
Lakewood, CO
80215-7093
(303) 239-3700

Jenny Saunders
(303) 239-3708
email: jsaunde@co.blm.gov
(303) 239-3670
(303) 239-3705

EASTERN STATE

(All states east of the Mississippi River, plus Arkansas, Iowa, Louisiana, Minnesota, Missouri)
7450 Boston Boulevard
Springfield, VA 22153
(703) 440-1700

Ed Ruda
(703) 440-1671
email: eruda@es.blm.gov
(703) 440-1713
(703) 440-1600

IDAHO

1387 South Vinnell Way
Boise, Idaho 83709-1657
(208) 373-4001

Bil Weigand
(208) 373-3862
email:
bweigand@id.blm.gov
(208) 373-3013
(208) 373-3890

MONTANA

(Includes North Dakota and South Dakota)
222 North 32nd Street
Granite Tower
P.O. Box 36800
Billings, MT 59107-6800
(406) 255-2904

Gary Leppart
(406) 255-2936
email: gleppart@mt.blm.gov
(406) 255-2913

NEVADA

850 Harvard Way
P.O. Box 12000
Reno, NV 89502-2055
(702) 785-6590

Ken Stowers
(702) 785-6478
email:
kstowers@nv.blm.gov
(702) 785-6586
(702) 785-6501

NEW MEXICO

(Includes Kansas, Oklahoma and Texas)
1474 Rodeo Road
P.O. Box 27115
Santa Fe, NM 87505
(505) 438-7501

Ted Rael
(505) 438-7419
email: trael@nm.blm.gov
(505) 438-7404
(505) 428-7450

OREGON

(Includes Washington)
1515 S.W. 5th Avenue
P.O. Box 2965
Portland, OR 97208-2965
(503) 952-6024

Priscilla McLain
(503) 952-6063
email:
pmclain@or.blm.gov
(503) 952-6027
(503) 952-6001

UTAH

324 South State Street
P.O. Box 45155
Salt Lake City, UT
84145-0155
(801) 539-4010

Teresa Catlin
(801) 539-4122
email: tcatlin@ut.blm.gov
(801) 539-4021
(801) 539-4001

WYOMING

(Includes Nebraska)
5353 Yellowstone Road
P. O. Box 1828
Cheyenne, WY 82009
(307) 775-6001

Jim Paugh
(307) 775-6306
email:
wyjpaugh@wy.blm.gov
(307) 775-6011
(307) 775-6314

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**BLM HEADQUARTERS
U.S. DEPARTMENT OF
INTERIOR**
1849 C Street, NW
BLM, WO-350
(MS 1000 LS)
Washington, DC 20240

Carl Gammon
(202) 452-7777
email:
cgammon@wo.blm.gov

Ron Montagna
(202) 452-7782
email:
rmontagn@wo.blm.gov

NATIONAL BUSINESS CTR
BC-600
Denver Federal Center,
Bldg. 50
P.O. Box 25047
Denver, CO 80225-0047
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Denver, CO 80225-0047
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Denver, CO 80225-0047
(303) 236-6503

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Boise, ID 83705-5354
(208) 387-5446
(208) 387-5458

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9828 North 31st Avenue
Phoenix, AZ 85051-2517
(602) 906-5500

Jim Stobaugh
(602) 906-5510
email: jstobaugh@tc.blm.gov

UNITED STATES FOREST SERVICE

(Washington Office)

Public Affairs Office Information: 202-205-1760

Special Uses Staff:

Ellen Heath	202-205-1358
Suzanne Novak	202-205-1256
Mark Scheibel	202-205-1264

USFS REGION 1

(Northern Region)

**Montana, Northern Idaho, North Dakota,
and Northwestern South Dakota**

Regional Office

Federal Building • 200 Broadway • P.O. Box 7669
Missoula, MT 59807
Phone: 406-329-3511

Idaho

Clearwater National Forest

12730 Highway 12
Orofino, ID 83544
Phone: 208-476-4541
Fax: 208-476-8329

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Dillon, MT 59725-3572
Phone: 406-683-3900
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Fax: 406-587-6758

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Livingston: Livingston, MT 59047	406-222-1892

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Helena, MT 59601
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Fax: 406-449-5436

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Townsend: Townsend, MT 59644	406-266-3425

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506 Highway 2 W
Libby, MT 59923
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Fax: 406-761-1972

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Fax: 406-329-3795

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**Colorado, Kansas, Nebraska, South Dakota,
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Regional Office

PO Box 25127, 740 Simms St. • Lakewood, CO 80225
Phone: 303-275-5350

Colorado

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240 W. Prospect
Fort Collins, CO 80526
Phone: 970-498-1100
Fax: 970-498-1212

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Fax: 719-543-8926

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Monte Vista, CO 81144
Phone: 719-852-5941
Fax: 719-852-6250

Ranger Districts:

Columbine: Bayfield, CO 81122	970-884-2512
Conejos Peak: La Jara, CO 81140	719-274-8971
Mancos-Dolores: Dolores, CO 81323	970-882-7296
Divide: Del Norte, CO 81132	719-657-3321
Pagosa: Pagosa Springs, CO 81147	970-264-2268
Saguache: Saguache, CO 81149	719-655-2547

White River National Forest

Old Federal Building, 9th and Grand, Box 948
Glenwood Springs, CO 81602
Phone: 970-945-2521
Fax: 970-945-3266

Ranger Districts:

Aspen: Aspen, CO 81611	970-925-3445
Blanco: Hahnenberg, Meeker, CO 81641	970-878-4039
Dillon: Silverthorne, CO 80498	970-468-5400
Eagle: Eagle, CO 81631	970-328-6388
Holy Cross: Minturn, CO 81645	970-827-5715
Rifle: CO 81650	970-625-2371
Sopris: Carbondale, CO 81623	970-963-2266

This information is also found on the Internet at
<http://www.fs.fed.us/intro/directory/orgdir.htm>

Nebraska

Nebraska National Forest

125 N. Main Street
Chadron, NE 69337
Phone: 308-432-0300
Fax: 308-432-0309

Ranger Districts:

Bessey: Halsey, NE 69142	308-533-2257
Fall River: Hot Springs, SD 57747	605-745-4107
Pine Ridge: Chadron, NE 69337	308-432-4475
Wall: Wall, SD 57790	605-279-2125

South Dakota

Black Hills National Forest

RR 2 Box 200
Custer, SD 57730-9504
Phone: 605-673-2251
Fax: 605-673-5567

Ranger Districts:

Bearlodge: Sundance, WY 82729	307-283-1361
Custer/Elk Mountain: Custer, SD 57730	605-673-4853
Pactola/Harney: Rapid City, SD 57701	605-574-2534
Spearfish/Nemo: Spearfish, SD 57783	605-642-4622

Wyoming

Bighorn National Forest

1969 S. Sheridan Avenue
Sheridan, WY 82801
Phone: 307-672-0751

Ranger Districts:

Buffalo: Buffalo, WY 82834	307-684-1100
Medicine Wheel: Lovell, WY 82431	307-548-6541
Paintrock: Greybull, WY 82426	307-765-4435
Tensleep: Worland, WY 82401	307-347-8291
Tongue: Sheridan, WY 82801	307-672-0751

Medicine Bow-Routt National Forests

2468 Jackson Street
Laramie, WY 82070-6535
Phone: 307-745-2307
Fax: 307-745-2398

Ranger Districts:

Brush Creek-Hayden:	
Saratoga, WY 82331	307-326-5258
Laramie: Laramie, WY 82070-6535	307-745-2300
Douglas and Thunder Basin National	
Grassland: Douglas, WY 82633	307-358-4690
Hahns Peak-Bears Ears:	
Steamboat Springs, CO 80477	970-879-1870
Yampa: Yampa, CO 80483	970-638-4516
Parks: Walden, CO 80480	970-723-8204

Shoshone National Forest

808 Meadow Lane
Cody, WY 82414
Phone: 307-527-6241

Ranger Districts:

Clarks Fork: Powell, WY 82435	307-754-7207
Greybull: Meeteetse, WY 82433	307-868-2536
Washakie: Lander, WY 82520	307-332-5460
Wapiti: Cody, WY 82414	307-527-6921
Wind River: Dubois, WY 82513	307-455-2466

USFS REGION 3

(Southwestern Region)

Arizona and New Mexico

Regional Office

Federal Building • 517 Gold Avenue, SW
Albuquerque, NM 87102
Phone: 505-842-3292

Arizona

Apache-Sitgreaves National Forests

Ranger Districts:

Alpine: Alpine, AZ 85920	520-339-4384
Clifton: Duncan, AZ 85534	520-687-1301
Chevelon/Heber:	
Overgaard, AZ 85933-0968	520-535-4481
Lakeside: Lakeside, AZ 85929	520-368-5111
Springerville: Springerville, AZ 85938	520-333-4372

This information is also found on the Internet at
<http://www.fs.fed.us/intro/directory/orgdir.htm>

Coconino National Forest

2323 E. Greenlaw Lane
Flagstaff, AZ 86004
Phone: 520-527-3500
Fax: 520-527-3620

Ranger Districts:

Beaver Creek: Rimrock, AZ 86335	520-567-4501
Blue Ridge: Happy Jack, AZ 86024	520-477-2255
Peaks: Flagstaff, AZ 86004	520-526-0866
Long Valley: Happy Jack, AZ 86024	520-354-2216
Mormon Lake: Flagstaff, AZ	520-775-1182
Sedona: Sedona, AZ 86339	520-282-4119

Coronado National Forest

300 W. Congress
Tucson, AZ 85701
Phone: 520-670-4552
Fax: 520-670-4567

Ranger Districts:

Douglas: Douglas, AZ 85607	520-670-5460
Nogales: Nogales, AZ 85621	520-670-5464
Sierra Vista: Hereford, AZ 85615	520-670-5468
Safford: Safford, AZ 85548-0709	520-670-5462
Santa Catalina: Tucson, AZ 85715	520-670-5466

Kaibab National Forest

800 S. 6th Street
Williams, AZ 86046
Phone: 520-635-8200
Fax: 520-635-8208

Ranger Districts:

Chalender: Williams, AZ 86046	520-635-2676
North Kaibab: Fredonia, AZ 86022	520-643-7395
Tusayan: Tusayan, AZ 86023	520-638-2443
Williams: Williams, AZ 86046	520-635-2633

Prescott National Forest

344 South Cortez
Prescott, AZ 86303
Phone: 520-771-4700
Fax: 520-771-4884

Ranger Districts:

Chino Valley: Chino Valley, AZ 86323	520-636-2302
Bradshaw: Prescott, AZ 86301	520-445-7253
Verde: Camp Verde, AZ 86322	520-567-4121

Tonto National Forest

2324 E. McDowell Road
Phoenix, AZ 85006
Phone: 602-225-5200
Fax: 602-225-5295

Ranger Districts:

Cave Creek: Carefree, AZ 85377	602-488-3441
Globe: Globe, AZ 85501	520-402-6200
Mesa: Mesa, AZ 85211-5800	602-379-6446
Payson: Payson, AZ 85541	520-474-7900
Pleasant Valley: Young, AZ 85554	520-462-4300
Tonto Basin: Roosevelt, AZ 85545	520-467-3200

New Mexico

Carson National Forest

208 Cruz Alta Road
Taos, NM 87571
Phone: 505-758-6200
Fax: 505-758-6213

Ranger Districts:

Camino Real: Penasco, NM 87553	505-587-2255
Canjilon: Canjilon, NM 87515	505-684-2486
El Rito: El Rito, NM 87530	505-581-4554
Jicarilla: Bloomfield, NM 87413	505-632-2956
Questa: Questa, NM 87556	505-586-0520
Tres Piedras: Tres Piedras, NM 87577	505-758-8678

Cibola National Forest

2113 Osuna Road NE, Suite A
Albuquerque, NM 87113-1001
Phone: 505-761-4650
Fax: 505-761-4663

Ranger Districts:

Black Kettle: Cheyenne, OK 73628	405-497-2143
Kiowa/Rita Blanca: Clayton, NM 88415	505-374-9652
Magdalena: Magdalena, NM 87825	505-854-2381
Mountainair: Mountainair, NM 87036	505-847-2990
Mt. Taylor: Grants, NM 87020	505-287-8833
Sandia: Tijeras, NM 87059	505-281-3304

Gila National Forest

3005 E. Camino del Bosque
Silver City, NM 88061
Phone: 505-388-8201
Fax: 505-388-8204

Ranger Districts:

Black Range:
Truth or Consequences, NM 87901 505-894-6677
Glenwood: Glenwood, NM 88039 505-539-2481
Quemado: Quemado, NM 87829 505-773-4678

Reserve: Reserve, NM 87830 505-533-6231
Silver City: Silver City, NM 88061 505-538-2771
Wilderness: Mimbres, NM 88049 505-536-2250

Lincoln National Forest

Federal Building, 1101 New York Avenue
Alamogordo, NM 88310-6992
Phone: 505-434-7200

Ranger Districts:

Sacramento: Cloudcroft, NM 88317 505-682-2551
Guadalupe: Carlsbad, NM 88220 505-885-4181
Smokey Bear: Ruidoso, NM 88345 505-257-4095

Santa Fe National Forest

1474 Rodeo Road
Santa Fe, NM 87505
Phone: 505-438-7840
Fax: 505-438-7834

Ranger Districts:

Coyote: Coyote, NM 87012 505-638-5526
Cuba: Cuba, NM 87013 505-289-3264
Española: Espanola, NM 87532 505-753-7331
Jemez: Jemez Springs, NM 87025 505-829-3535
Pecos-Las Vegas: Pecos, NM 87552 505-757-6121
Las Vegas, NM 87701 505-425-3534

USFS REGION 4

(Intermountain Region)

**Southern Idaho, Nevada, Utah,
and
Western Wyoming**

Regional Office

Federal Building • 324 25th Street • Ogden, UT 84401
Phone: 801-625-5352

Idaho

Boise National Forest

1249 South Vinrell Way
Boise, ID 83709
Phone: 208-373-4100
Fax: 208-373-4111

Ranger Districts:

Cascade: Cascade, ID 83611 208-382-7400
Emmett: Emmett, ID 83617 208-365-7000
Idaho City: Idaho City, ID 83631 208-392-6681
Lowman: Lowman, ID 83637 208-259-3361
Mountain Home:
Mountain Home, ID 83647 208-587-7961

Caribou National Forest

250 S. 4th Avenue, Suite 172
Federal Building
Pocatello, ID 83201
Phone: 208-236-7500

Ranger Districts:

Malad: Malad, ID 83252 208-766-4743
Montpelier: Montpelier, ID 83254 208-847-0375
Pocatello: Tower, Pocatello, ID 83201 208-236-7500
Soda Springs: Soda Springs, ID 83276 208-547-4356
Curlew National Grasslands:
Malad, ID 83252

Challis National Forest

RR2, Box 600
Salmon, ID 83467
Phone: 208-756-5100
Fax: 208-756-5151

Ranger Districts:

Challis: Challis, ID 83226 208-879-4321
Lost River: Mackay, ID 83251 208-588-2224
Middle Fork: Challis, ID 83226 208-879-4101
Yankee Fork: Clayton, ID 83227 208-838-3300

Payette National Forest

Box 1026, 800 W. Lakeside Avenue
McCall, ID, 83638
Phone: 208-634-0700
Fax: 208-634-0744

Ranger Districts:

Council: Council, ID 83612	208-253-0100
Krassel: Dauber, McCall, ID 83638	208-634-0600
McCall: McCall, ID 83638	208-634-0400
New Meadows:	
New Meadows, ID 83654	208-347-0300
Weiser: Weiser, ID 83672	208-549-4200

Salmon National Forest

RR2, Box 600
Salmon, ID 83467
Phone: 208-756-5100
Fax: 208-756-5151

Ranger Districts:

Salmon: Salmon, ID 83467	
Winter	208-756-5100
Summer	208-756-5260
Cobalt: Salmon, ID 83467	
Winter	208-756-5100
Summer	208-756-5260
North Fork:	
North Fork, ID 83466-0180	208-865-2383
Leadore: Leadore, ID 83464-0180	208-768-2500

Sawtooth National Forest

2647 Kimberly Road East
Twin Falls, ID 83301-7976
Phone: 208-737-3200
Fax: 208-737-3236

Ranger Districts:

Burley: Burley, ID 83318	208-678-0430
Fairfield: Fairfield, ID 83327	208-764-2202
Ketchum: Ketchum, ID 83340	208-622-5371
Sawtooth NRA: Ketchum, ID 83340	208-727-5000
Twin Falls: Twin Falls, ID 83301-7976	208-737-3200

Targhee National Forest

420 N. Bridge Street, PO Box 208
St. Anthony, ID 83445
Phone: 208-624-3151
Fax: 208-624-4049

Ranger Districts:

Ashton: Ashton, ID 83420	208-652-7442
Dubois: Dubois, ID 83423	208-374-5422
Island Park: Island Park, ID 83429	208-558-7301
Palisades: Idaho Falls, ID 83401	208-523-1412
Teton Basin: Driggs, ID 83422	208-354-2431

Nevada

Humboldt National Forest

2035 Last Chance Road
Elko, NV 89801
Phone: 702-778-0209
Fax: 702-778-0299

Ranger Districts:

Ely: Ely, NV 89301	702-289-3031
Jarbridge: Buhl, ID 83316	208-543-4129
Mountain City:	
Mountain City, NV 89831	702-763-6691
Santa Rosa: Winnemucca, NV 89445	702-623-5025
Ruby Mountains: Wells, NV 89835	702-752-3357

Toiyabe National Forest

1200 Franklin Way
Sparks, NV 89431
Phone: 702-355-5300
Fax: 702-355-5399

Ranger Districts:

Austin: Austin, NV 89310	702-964-2671
Bridgeport: Bridgeport, CA 93517	619-932-7070
Carson: Carson City, NV 89701	702-882-2766
Las Vegas: Las Vegas, NV 89104	702-873-8800
Tonopah: Tonopah, NV 89049	702-482-6286

Utah

Ashley National Forest

355 North Vernal Avenue
Vernal, UT 84078
Phone: 801-789-1181
Fax: 801-781-5142

Ranger Districts:

Duchesne: Duchesne, UT 84021	801-738-2482
Flaming Gorge NRA:	
Manila, UT 84046	801-784-3445
Roosevelt: Roosevelt, UT 84066	801-722-5018
Vernal: Vernal, UT 84078	801-789-1181

Dixie National Forest

82 N. 100 East
 Cedar City, UT 84720-2686
 Phone: 801-865-3700
 Fax: 801-865-3791

Ranger Districts:

Cedar City: Cedar City, UT 84720	801-865-3200
Escalante: Escalante, UT 84726	801-826-5400
Pine Valley: St. George, UT 84770	801-652-3100
Powell: Panguitch, UT 84759	801-676-8815
Teasdale: Teasdale, UT 84773	801-425-3702

Fishlake National Forest

115 E. 900 N
 Richfield, UT 84701
 Phone: 801-896-9233

Ranger Districts:

Beaver: Beaver, UT 84713	801-438-2436
Fillmore: Fillmore, UT 84631	801-743-5721
Loa: Loa, UT 84747	801-836-2811
Richfield: Richfield, UT 84701	801-896-9233

Manti-La Sal National Forest

599 W. Price River Drive
 Price, UT 84501
 Phone: 801-636-3500
 Fax: 801-637-4940

Ranger Districts:

Ferron: Ferron, UT 84523	801-384-2372
Moab: Moab, UT 84532	801-259-7155
Monticello: Monticello, UT 84535	801-587-2041
Price: Price, UT 84501	801-637-2817
Sanpete: Ephraim, UT 84627	801-283-4151

Uinta National Forest

88 W. 100 N
 Provo, UT 84601
 Phone: 801-342-5100
 Fax: 801-342-5144

Ranger Districts:

Heber: Heber, UT 84032	801-342-5200
Pleasant Grove:	
Pleasant Grove, UT 84062,	801-342-5240
Spanish Fork: Spanish Fork, UT 84660	801-342-5260

Wasatch-Cache National Forest

8236 Federal Building, 125 S. State Street
 Salt Lake City, UT 84138
 Phone: 801-524-5030
 Fax: 801-524-3172

Ranger Districts:

Evanston: Evanston, WY 82931-1880	307-789-3194
Kamas: Kamas, UT 84036	801-783-4338
Logan: Logan, UT 84321	801-753-2772
Mountain View:	
Mountain View, WY 82939	307-782-6555
Ogden: Ogden, UT 84402	801-625-5110
Salt Lake/Tooele:	
Salt Lake City, UT 84121	

Wyoming

Bridger-Teton National Forest

340 N. Cache, Box 1888
 Jackson, WY 83001
 Phone: 307-739-5500
 Fax: 307-739-5010

Ranger Districts:

Big Piney: Big Piney, WY 83113	307-276-3375
Buffalo: Moran, WY 83013	307-543-2386
Greys River: Afton, WY 83110	307-886-3166
Jackson: Jackson, WY 83001	307-739-5400
Kemmerer: Kemmerer, WY 83101	307-877-4415
Pinedale: Pinedale, WY 82941	307-367-4326

USFS REGION 5

(Pacific Southwest Region)

**California, Hawaii, Guam, and Trust Territories
of the Pacific Islands**

Regional Office

630 Sansome Street • San Francisco, CA 94111
Phone: 415-705-2874

California

Angeles National Forest

701 N. Santa Anita Ave.
Arcadia, CA 91006
Phone: 818-574-1613
Fax: 818-574-5233

Ranger Districts:

Arroyo Seco: Flintridge, CA 91011	818-790-1151
Mt. Baldy: Glendora, CA 91740	818-335-1251
Saugus: Saugus, CA 91350	805-296-9710
Tujunga: San Fernando, CA 91342	818-899-1900
Valyermo: Valyermo, CA 93553	805-944-2187

Cleveland National Forest

10845 Rancho Bernardo Road, Suite 200
San Diego, CA 92127-2107
Phone: 619-673-6180
Fax: 619-673-6192

Ranger Districts:

Descanso: Alpine, CA 91901	619-445-6235
Palomar: Ramona, CA 92065	619-788-0250
Trabuco: Corona, CA 91719	909-736-1811

Eldorado National Forest

100 Forni Road
Placerville, CA 95667
Phone: 916-622-5062
Fax: 916-621-5297

Ranger Districts:

Amador: Pioneer, CA 95666	209-295-4251
Georgetown: Georgetown, CA 95634	916-333-4312
Pacific: Pollock Pines, CA 95726	916-644-2349
Placerville: Camino, CA 95709	916-644-2324
Nursery: Camino, CA 95709	916-622-9600

Inyo National Forest

873 North Main Street
Bishop, CA 93514
Phone: 760-873-2400
Fax: 760-873-2458

Ranger Districts:

Mammoth/Mono Lake:	
Mammoth Lakes, CA 93546	760-924-5520
White Mountain/Mt. Whitney:	
Bishop, CA 94514	760-873-2500

Klamath National Forest

1312 Fairlane Road
Yreka, CA 96097
Phone: 916-842-6131
Fax: 916-842-6327

Ranger Districts:

Oak Knoll: Klamath River, CA 96050	916-465-2241
Happy Camp: Happy Camp, CA 96039	916-493-2243
Goosenest: Mt. Hebron, CA 96066	916-398-4391
Ukonom: Orleans, CA 95556	916-627-3291
Salmon River: Fort Jones, CA 96032	916-468-5351
Scott River: Fort Jones, CA 96032	916-468-5351

Lake Tahoe Basin Management Unit

870 Emerald Bay Road, Suite 1
South Lake Tahoe, CA 96150
Phone: 916-573-2600
Fax: 916-573-2693

Lassen National Forest

55 S. Sacramento Street
Susanville, CA 96130
Phone: 916-257-2151
Fax: 916-257-8282

Ranger Districts:

Almanor: Chester, CA 96020	916-258-2141
Eagle Lake: Susanville, CA 96130	916-257-4188
Hat Creek: Fall River Mills, CA 96028	916-336-5521

Los Padres National Forest

6144 Calle Real
Goleta, CA 93117
Phone: 805-683-6711
Fax: 805-681-2729

Ranger Districts:

Monterey: King City, CA 93930	408-385-5464
Mt. Pinos: Frazier Park, CA 93225	805-245-3731
Ojai: Ojai, CA 93023	805-646-4348
Santa Barbara: Santa Barbara, CA 93105	805-967-3481
Santa Lucia: Santa Maria, CA 93454	805-925-9538

Mendocino National Forest

825 N. Humboldt Ave.
Willows, CA 95988
Phone: 916-934-3316
Fax: 916-934-7384

Ranger Districts:

Corning: Corning, CA 96021	916-824-5196
Covelo: Covelo, CA 95428	707-983-6118
Stonyford: Willows, CA 95988	916-934-3316
Upper Lake: Upper Lake, CA 95485	707-275-2361

Modoc National Forest

800 W. 12th Street
Alturas, CA 96101
Phone: 916-233-5811
Fax: 916-233-5817

Ranger Districts:

Warner Mountain:	
Cedarville, CA 96104	916-279-6116
Big Valley: Adin, CA 96006	916-299-3215
Devil's Garden: Alturas, CA 96101	916-233-5811
Doublehead: Tulelake, CA 96134	916-667-2246

Plumas National Forest

159 Lawrence Street, Box 11500
Quincy, CA 95971-6025
Phone: 916-283-2050
Fax: 916-283-4156

Ranger Districts:

Beckwourth: Blairsden, CA 96103	916-836-2575
Feather River: Oroville, CA 95965	916-534-6500
Mt. Hough: Quincy, CA 95971	916-283-0555

San Bernardino National Forest

1824 S. Commercenter Circle
San Bernardino, CA 92408-3430
Phone: 909-383-5588

Ranger Districts:

Arrowhead: Sky Forest, CA 92385	909-337-2444
Big Bear: Fawnskin, CA 92333	909-866-3437
Cajon: Fontana, CA 92335	909-887-2576
San Gorgonio: Mentone, CA 92359	909-794-1123
San Jacinto: Idyllwild, CA 92349	909-659-2117

Sequoia National Forest

900 W. Grand Ave.
Porterville, CA 93257-2035
Phone: 209-784-1500
Fax: 209-781-4744

Ranger Districts:

Hume Lake: Dunlap, CA 93621	209-338-2251
Tule River/Hot Springs:	
Springville, CA 93267	209-539-2607
Greenhorn: Lake Isabella, CA 93240	619-379-5646
Cannell Meadow: Kernville, CA 93238	619-376-3781

Shasta-Trinity National Forest

2400 Washington Ave.
Redding, CA 96001
Phone: 916-246-5222
Fax: 916-246-5300

Ranger Districts:

Yolla Bolla: Platina, CA 96076	916-352-4211
Hayfork: Hayfork, CA 96041	916-628-5227
Big Bar: Big Bar, CA 96010	916-623-6106
Weaverville: Weaverville, CA 96093	916-623-2121
Shasta Lake: Redding, CA 96003	916-275-1587
Mt. Shasta: Mt. Shasta, CA 96067	916-926-4511
McCloud: McCloud, CA 96057	916-964-2184

Sierra National Forest

1600 Tollhouse Road
Clovis, CA 93611
Phone: 209-297-0706
Fax: 209-294-4809

Ranger Districts:

Mariposa: Oakhurst, CA 93644	209-683-4665
Kings River: Sanger, CA 93657	209-855-8321
Minarets: North Fork, CA 93643	209-877-2218
Pineridge: Shaver Lake, CA 93664	209-855-5360

This information is also found on the Internet at
<http://www.fs.fed.us/intro/directory/orgdir.htm>

Six Rivers National Forest

1330 Bayshore Way
Eureka, CA 95501-3834
Phone: 707-442-1721
Fax: 707-442-9242

Ranger Districts:

Smith River NRA: Gasquet, CA 95543 707-457-3131
Orleans: Orleans, CA 95556 916-627-3291
Lower Trinity:
Willow Creek, CA 95573 916-629-2118
Mad River: Bridgeville, CA 95526 707-574-6233

Stanislaus National Forest

19777 Greenley Road
Sonora, CA 95370
Fax: 209-533-1890

Ranger Districts:

Calaveras: Hathaway Pines, CA 95233 209-795-1381
Groveland: Groveland, CA 95321 209-962-7825
Mi-Wuk: Mi-Wuk Village, CA 95346 209-586-3234
Summit: Pinecrest, CA 95364 209-965-3434

Tahoe National Forest

631 Coyote Street, P.O. Box 6003
Nevada City, CA 95959-6003
Phone: 916-478-6200
Fax: 916-478-6109

Ranger Districts:

Downieville: Camptonville, CA 95922 916-288-3231
Foresthill: Foresthill, CA 95631 916-367-2224
Nevada City: Nevada City, CA 95959 916-478-6260
Sierraville: Sierraville, CA 96126 916-994-3401
Truckee: Truckee, CA 95734 916-587-3558

USFS REGION 6

(Pacific Northwest Region)

Oregon and Washington

Regional Office

333 SW 1st Ave. • P.O. Box 3623 • Portland, OR 97208
Phone: 503-808-2636

Oregon

Columbia River Gorge National Scenic Area

902 Wasco Avenue, Suite 200
Hood River, OR 97031
Phone: 503-386-2333
Fax: 541-386-1916

Deschutes National Forest

1645 Highway 20 E
Bend, OR 97701
Phone: 541-388-2715
Fax: 541-383-5531

Ranger Districts:

Bend/Ft. Rock: Bend, OR 97701 541-388-5664
Crescent: Crescent, OR 97733 541-433-2234
Sisters: Sisters, OR 97759 541-549-2111

Fremont National Forest

524 North G Street
Lakeview, OR 97630
Phone: 541-947-2151
Fax: 541-947-6399

Ranger Districts:

Bly: Bly, OR 97622, 541-353-2427
Lakeview: Lakeview, OR 97630 541-947-3334
Paisley: Paisley, OR 97636 541-943-3114
Silver Lake: Silver Lake, OR 97638 541-576-2107

Malheur National Forest

PO Box 909
John Day, OR 97845
Phone: 541-575-3000
Fax: 541-575-3001

Ranger Districts:

Bear Valley: John Day, OR 97845 541-575-3000
Burns: Hines, OR 97738 541-573-4300
Long Creek: John Day, OR 97845 541-575-3000
Prairie City: Prairie City, OR 97869 541-820-3800

Mt. Hood National Forest

16400 Champion Way
Sandy, OR 97055
Phone: 503-668-1700
Fax: 503-668-1641

Ranger Districts:

Barlow: Dufur, OR 97021	541-467-2291
Clackamas River: Estacada, OR 97023	503-630-6861
Hood River:	
Mt. Hood-Parkdale, OR 97031	541-352-6002
Zigzag: Zigzag, OR 97049	503-622-3191

Ochoco National Forest

3160 NE 3rd Street, Box 490
Prineville, OR 97754
Phone: 541-416-6500
Fax: 541-416-6695

Ranger Districts:

Big Summit: Prineville, OR 97754	541-416-6645
Paulina: Paulina, OR 97751	541-477-3713
Prineville: Prineville, OR 97754	541-416-6500
Snow Mountain: Hines, OR 97738	541-573-4300
Crooked River National Grassland: Madras, OR 97754	541-475-9272

Rogue River National Forest

Federal Building, 333 W. 8th Street, Box 520
Medford, OR 97501
Phone: 541-858-2200
Fax: 541-858-2220

Ranger Districts:

Applegate: Jacksonville, OR 97530	541-899-1812
Ashland: Ashland, OR 97520	541-482-3333
Butte Falls: Butte Falls, OR 97522	541-865-2700
Prospect: Prospect, OR 97536	541-560-3400

Siskiyou National Forest

Box 440
Grants Pass, OR 97526-0242
Phone: 541-471-6500
Fax: 541-471-6514

Ranger Districts:

Chetco: Brookings, OR 97415	541-469-2196
Galice: Grants Pass, OR 97526	541-471-6500
Gold Beach: Gold Beach, OR 97444	541-247-3600
Illinois Valley:	
Cave Junction, OR 97523	541-592-2166
Powers: Powers, OR 97466	541-439-3011

Siuslaw National Forest

4077 Research Way
Corvallis, OR 97333
Phone: 541-750-7000
Fax: 541-750-7234

Ranger Districts:

Alsea/Waldport: Waldport, OR 97394	541-487-5811
Hebo: Hebo, OR 97122	503-392-3161
Mapleton: Mapleton, OR 97453	541-268-4473
Oregon Dunes NRA:	
Reedsport, OR 97467	541-271-3611

Umatilla National Forest

2517 SW Hailey Ave.
Pendleton, OR 97801
Phone: 541-278-3716
Fax: 541-278-3730

Ranger Districts:

Heppner: Heppner, OR 97836	541-676-9187
Pomeroy: Pomeroy, WA 99347	509-843-1891
North Fork John Day:	
Ukiah, OR 97880	541-427-3231
Walla Walla: Walla Walla, WA 99362	509-522-6290

Umpqua National Forest

Box 1008
Roseburg, OR 97470
Phone: 541-672-6601
Fax: 541-957-3495

Ranger Districts:

Cottage Grove:	
Cottage Grove, OR 97424	541-942-5591
Tiller: Tiller, OR 97484	541-825-3201
Diamond Lake: Idleld Park, OR 97447	541-498-2531
North Umpqua: Glide, OR 97443	541-496-3532

Wallowa-Whitman National Forest

Box 907
Baker City, OR 97814
Phone: 541-523-6391
Fax: 541-523-1315

Ranger Districts:

Baker: Baker City, OR 97814	541-523-4476
Eagle Cap: Enterprise, OR 97828	541-426-4978
Hells Canyon NRA:	
Enterprise, OR 97828	541-426-4978
La Grande: La Grande, OR 97850	541-963-7186
Pine: Halfway, OR 97834	541-742-7511
Unity: Unity, OR 97884	541-446-3351
Wallowa Valley: Enterprise, OR 97828	541-426-4978

This information is also found on the Internet at
<http://www.fs.fed.us/intro/directory/orgdir.htm>

Willamette National Forest

Box 10607
Eugene, OR 97440
Phone: 541-465-6521
Fax: 541-465-6343

Ranger Districts:

Blue River: Blue River, OR 97413	541-822-3317
Detroit: Mill City, OR 97360	541-854-3366
Lowell: Lowell, OR 97452	541-937-2129
McKenzie: McKenzie Bridge, OR 97413	541-822-3381
Oakridge: Westfir, OR 97492	541-782-2291
Rigdon: Oakridge, OR 97463	541-782-2283
Sweet Home: Sweet Home, OR 97386	541-367-5168

Winema National Forest

2819 Dahlia
Klamath Falls, OR 97601
Phone: 541-883-6714
Fax: 541-883-6709

Ranger Districts:

Chemult: Chemult, OR 97731	541-365-7001
Chiloquin: Chiloquin, OR 97624	541-783-4001
Klamath: Klamath Falls, OR 97601	541-885-3400

Washington

Colville National Forest

765 S. Main
Colville, WA 99114
Phone: 509-684-7000
Fax: 509-684-7280

Ranger Districts:

Colville: Colville, WA 99114	509-684-7010
Kettle Falls: Kettle Falls, WA 99141	509-738-6111
Newport: Newport, WA 99156	509-447-7300
Republic: Republic, WA 99166	509-775-3305
Sullivan Lake:	
Metalline Falls, WA 99153	509-446-7500

Gifford Pinchot National Forest

10600 NE 51st Circle
Vancouver, WA 98682
Phone: 360-891-5000
Fax: 360-750-5045

Ranger Districts:

Mt. Adams: Trout Lake, WA 98650	509-395-2501
Packwood: Packwood, WA 98361	360-494-5515
Randle: Randle, WA 98377	360-497-7565
Wind River: Carson, WA 98610	509-427-5645
Mount St. Helens National Volcanic Monument: Amboy, WA 98601	360-750-3900

Mt. Baker-Snoqualmie National Forest

21905 64th Avenue West
Mountlake Terrace, WA 98043
Phone: 425-775-9702

Ranger Districts:

Mt. Baker: Sedro Woolley, WA 98284	360-856-5700
Darrington: Darrington, WA 98241	360-436-1155
North Bend: North Bend, WA 98045	425-888-1421
Skykomish: Skykomish, WA 98288	360-677-2414
White River: Enumclaw, WA 98022	360-825-6585

Okanogan National Forest

1240 S. Second Ave.
Okanogan, WA 98840
Phone: 509-826-3275
Fax: 509-422-2014

Ranger Districts:

Tonasket: Tonasket, WA 98855	509-486-2186
Methow Valley:	
Glover, Twisp, WA 98856	509-997-2131

Olympic National Forest

1835 Black Lake Blvd SW
Olympia, WA 98512
Phone: 360-956-2300
Fax: 360-956-2330

Ranger Districts:

Hood Canal: Hoodspart, WA 98548	360-877-5254
Quilcene: Quilcene, WA 98376	360-765-2200
Quinault: Quinault, WA 98575	360-288-2525
Soleduck: Forks, WA 98331	360-374-6522

Wenatchee National Forest

215 Melody Lane
Wenatchee, WA 98801
Phone: 509-662-4335
Fax: 509-662-4368

Ranger Districts:

Chelan: Chelan, WA 98816	509-682-2576
Cle Elum: Cle Elum, WA 98922	509-674-4411
Entiat: Entiat, WA 98822	509-784-1511
Lake Wenatchee:	
Leavenworth, WA 98826	509-763-3103
Leavenworth: Leavenworth, WA 98826	509-782-1413
Naches: Naches, WA 98937	509-653-2205

This information is also found on the Internet at
<http://www.fs.fed.us/intro/directory/orgdir.htm>

USFS REGION 8

(Southern Region)

**Alabama, Arkansas, Florida, Georgia, Kentucky,
Louisiana, Mississippi, North Carolina,
Oklahoma, Puerto Rico, South Carolina,
Tennessee, Texas, Virgin Islands, and Virginia**

Regional Office

1720 Peachtree Road, NW • Atlanta, GA 30367

Phone: 404-347-2384

Alabama

National Forests in Alabama

2946 Chestnut Street
Montgomery, AL 36107-3010
Phone: 334-832-4470
Fax: 334-241-8111

Ranger Districts:

Bankhead: Double Springs, AL 35553	205-489-5111
Conecuh: Andalusia, AL 36420	334-222-2555
Oakmulgee: Centreville, AL 35402	205-926-9765
Shoal Creek: Heflin, AL 36264	205-463-2272
Talladega: Talladega, AL 35160	205-362-2909
Tuskegee: Tuskegee, AL 36083	334-727-2652

Arkansas

Ouachita National Forest

Box 1270, Federal Building
Hot Springs National Park, AR 71902
Phone: 501-321-5202
Fax: 501-321-5353

Ranger Districts:

Caddo: Glenwood, AR 71943	501-356-4186
Choctaw: Heavener, OK 74937	918-653-2991
Cold Springs: Booneville, AR 72927	501-675-3233
Fourche: Danville, AR 72833	501-495-2844
Jessieville: Jessieville, AR 71949	501-984-5313
Kiamichi: Talihina, OK 74571	918-567-2326
Mena: Mena, AR 71953	501-394-2382
Oden: Oden, AR 71961	501-326-4322
Poteau: Waldron, AR 72958	501-637-4174
Tiaki: Idabel, OK 74745	405-286-6564
Winona: Perryville, AR 72126	501-889-5176
Womble: Mount Ida, AR 71957	501-867-2101

Ozark-St. Francis National Forests

605 W. Main
Russellville, AR 72801-3614
Phone: 501-968-2354
Fax: 501-964-7268

Ranger Districts:

Bayou: Hector, AR 72843	501-284-3150
Boston Mountain: Ozark, AR 72949	501-667-2191
Buffalo: Jasper, AR 72641	501-446-5122
Mt. Magazine: Paris, AR 72855	501-963-3076
Pleasant Hill: Clarksville, AR 72830	501-754-8864
Sylamore: Mountain View, AR 72560	501-269-3229
St. Francis: Marianna, AR 72360	501-295-5278

Florida

National Forests in Florida

Woodcrest Office Park, 325 John Knox Rd., Suite F-100
Tallahassee, FL 32303
Phone: 904-942-9300
Fax: 904-942-9305

Apalachicola National Forest

Ranger Districts:

Apalachicola: Bristol, FL 32321	904-643-2282
Wakulla: Crawfordville, FL 32327	904-926-3561

Ocala National Forest

Ranger Districts:

Lake George: Silver Springs, FL 34488	352-625-2520
Seminole: Umatilla, FL 32784	352-669-3153

Osceola National Forest

Ranger District:

Osceola: Olustee, FL 32072	904-752-2577
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Georgia

Chattahoochee and Oconee National Forests

1755 Cleveland Highway
Gainesville, GA 30501
Phone: 770-536-0541
Fax: 404-770-4411

Ranger Districts:

Armuchee: LaFayette, GA 30728	706-638-1085
Brasstown: Blairsville, GA 30512	706-745-6928
Chattooga: Clarkesville, GA 30523	706-754-6221
Cohutta: Chatsworth, GA 30705	706-695-6737
Tallulah: Clayton, GA 30525	706-782-3320
Toccoa: Blue Ridge, GA 30513	706-632-3031
Oconee: Eatonton, GA 31024	706-485-7110

This information is also found on the Internet at
<http://www.fs.fed.us/intro/directory/orgdir.htm>

Kentucky

Daniel Boone National Forest

1700 Bypass Road
Winchester, KY 40391
Phone: 606-745-3100
Fax: 606-745-4710

Ranger Districts:

Berea: Berea, KY 40403	606-986-8434
London: London, KY 40741	606-864-4164
Morehead: Morehead, KY 40351	606-784-6428
Redbird: Peabody, KY	606-598-2192
Somerset: Somerset, KY 42501	606-679-2010
Stanton: Stanton, KY 40380	606-663-2852
Stearns: Whitley City, KY 42653	606-376-5323

Louisiana

Kisatchie National Forest

2500 Shreveport Hwy.
Pineville, LA 71360-2009
Phone: 318-473-7160

Ranger Districts:

Caney: Homer, LA 71040	318-927-2061
Catahoula: Bentley, LA 71407	318-765-3554
Evangeline: Alexandria, LA 71302	318-445-9396
Kisatchie: Natchitoches, LA 71457	318-352-2568
Vernon: Leesville, LA 71446	318-239-6576
Winn: Winnfield, LA 71483	318-628-4664

Mississippi

National Forests in Mississippi

100 W. Capitol Street, Suite 1141
Jackson, MS 39269
Phone: 601-965-4391
Fax: 601-965-5519

Ranger Districts:

Bienville:	
Price, Forest 39014, MS 39153	601-469-3811
Delta: Rolling Fork, MS 39159	601-873-6256
DeSoto: Wiggins, MS 39577	601-928-5291
Chickasawhay: Laurel, MS 39440	601-428-0594
Holly Springs: Oxford, MS 38655	601-236-6550
Homochitto/Bude:	
Meadville, MS 39653	601-384-5876
Tombigbee: Ackerman, MS 39753	601-285-3264

North Carolina

National Forests in North Carolina

160A Zillicoa Street, PO Box 2750
Asheville, NC 28802
Phone: 704-257-4200
Fax: 704-257-4263

Croatan National Forest

Ranger District:

Croatan: New Bern, NC 28560 919-638-5628

Nantahala National Forest

Ranger Districts:

Cheoah: Robbinsville, NC 28771	704-479-6431
Highlands: Highlands, NC 28741	704-526-3765
Tusquitee: Murphy, NC 28906	704-837-5152
Wayah: Franklin, NC 28734	704-524-6441

Pisgah National Forest

Ranger Districts:

Grandfather:	
Anderson, Marion, NC 28752	704-652-2144
Pisgah: Pisgah Forest, NC 28768	704-877-3350
Appalachian: Burnsville, NC 28714	704-682-6146
(Hot Springs Office)	704-622-3202
Uwharrie: Troy, NC 27371	910-576-6391

Puerto Rico and the Virgin Islands

Caribbean National Forest

PO Box 490
Palmer, PR 00721
Phone: 787-888-1810

Ranger District:

El Yunque: Palmer, PR 00721 809-887-2875

South Carolina

Francis Marion and Sumter National Forests

4931 Broad River Rd
Columbia, SC 29210-4021
Phone: 803-561-4000
Fax: 803-561-4004

Ranger Districts:

Wambaw/Witherbee:	
Cordesville, SC 29434	803-336-3248
Andrew Pickens:	
Mountain Rest, SC 29664	864-638-9568
Long Cane: Edgefield, SC 29824	803-637-5396
Enoree: Whitmire, SC 29178	803-276-4810

Tennessee

Cherokee National Forest

PO Box 2010
Cleveland, TN 37320
Phone: 423-476-9700
Fax: 423-476-9754

Ranger Districts:

Hiwassee: Etowah, TN 37331	423-263-5486
Nolichucky: Greeneville, TN 37743	423-638-4109
Ocoee: Benton, TN 37307	423-338-5201
Tellico: Tellico Plains, TN 37385	423-253-2520
Unaka: Erwin, TN 37650	423-743-4452
Watauga: Elizabethton, TN 37643	423-542-2942

Texas

National Forests in Texas

Homer Garrison Federal Building
701 N. First Street
Lufkin, TX 75901
Phone: 409-639-8501
Fax: 409-639-8588

Caddo-Lyndon B. Johnson National Grasslands

Decatur, TX 76234 817-627-5475

Angelina National Forest

Lufkin, TX 75901 409-639-8620

Davy Crockett National Forest

Crockett, TX 75835 409-544-2046

Sabine National Forest

Hemphill, TX 75948 409-787-3870

Sam Houston National Forest

New Waverly, TX 77438 409-344-6205

Virginia

George Washington and Jefferson National Forests

Valleypointe Parkway
Roanoke, VA 24019-3050
Phone: 540-265-5100
Fax: 540-265-5145

Ranger Districts:

Blacksburg: Blacksburg, VA 24060	540-552-4641
Clinch: Wise, VA 24293	540-328-2931
Deerfield: Staunton, VA 24401	540-885-8028
Dry River: Bridgewater, VA 22812	540-828-2591
Glenwood:	
Natural Bridge Station, VA 24579	540-291-2188
James River: Covington, VA 24426	540-962-2214
Lee: Edinburg, VA 22824	540-984-4101
Mt. Rogers NRA: Marion, VA 24354	540-783-5196
New Castle: New Castle, VA 24127	540-864-5195
Pedlar: Buena Vista, VA 24416	540-261-6105
Warm Springs: Hot Springs, VA 24445	540-839-2521

USFS REGION 9

(Eastern Region)

Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wisconsin

Regional Office

310 West Wisconsin Avenue, Rm. 500
Milwaukee, WI 53203
Phone: 414-297-3693

Illinois

Shawnee National Forest

901 S. Commercial Street
Harrisburg, IL 62946
Phone: 618-253-7114
Fax: 618-253-1060

Ranger Districts:

Elizabethtown:	
Elizabethtown, IL 62931	618-287-2201
Jonesboro: Jonesboro, IL 62952	618-833-8576
Murphysboro: Murphysboro, IL 62966	618-687-1731
Vienna: Vienna, IL 62995	618-658-2111
Midwin National Tall Grass Prairie:	
Wilmington, IL 60481	815-423-6370

Indiana

Hoosier National Forest

811 Constitution Avenue
Bedford, IN 47421
Phone: 812-275-5987

Ranger Districts:

Brownstown: Bedford, IN 47421	812-275-5987
Tell City: Tell City, IN 47586	812-547-7051

Michigan

Hiawatha National Forest

2727 N. Lincoln Rd.
Escanaba, MI 49829
Phone: 906-786-4062
Fax: 906-789-3311

Ranger Districts:

Manistique: Manistique, MI 49854	906-341-5666
Munising: Munising, MI 49862	906-387-2512
Rapid River: Rapid River, MI 49878	906-474-6442
St. Ignace: St. Ignace, MI 49781	906-643-7900
Sault Ste. Marie:	
Sault Ste. Marie, MI 49783	906-635-5311

Huron-Manistee National Forests

1755 S. Mitchell Street
Cadillac, MI 49601
Phone: 616-775-2421
Fax: 616-775-5551

Ranger Districts:

Baldwin: Baldwin, MI 49304	616-745-4631
Cadillac: Cadillac, MI 49601	616-775-8539
Harrisville: Harrisville, MI 48740	517-739-0728
Manistee: Manistee, MI 49660	616-723-2211
Mio: Mio, MI 48647	517-826-3252
Tawas: East Tawas, MI 48730	517-739-0728
White Cloud: White Cloud, MI 49349	616-745-4631

Ottawa National Forest

2100 E. Cloverland Drive
Ironwood, MI 49938
Phone: 906-932-1330
Fax: 906-932-0122

Ranger Districts:

Bergland: Bergland, MI 49910	906-575-3896
Bessemer: Bessemer, MI 49911	906-667-0261
Iron River: Iron River, MI 49935	906-265-5139
Kenton: Kenton, MI 49943	906-852-3500
Ontonagon: Ontonagon, MI 49953	906-884-2411
Watersmeet: Watersmeet, MI 49969	906-358-4551

Minnesota

Chippewa National Forest

Rt 3 Box 244
Cass Lake, MN 56633
Phone: 218-335-8600
Fax: 218-335-8637

Ranger Districts:

Blackduck/Cass Lake:	
Blackduck, MN 5663	218-835-4291
Cass Lake/Walker:	
Cass Lake, MN 56633	218-335-2283
Deer River/Marcell:	
Deer River, MN 56636	218-246-2123

Superior National Forest

8901 Grand Avenue Place
Duluth, MN 55808-1102
Phone: 218-626-4302
Fax: 218-626-4398

Ranger Districts:

Laurentian: Aurora, MN 55705	218-229-3371
Gunflint: Grand Marais, MN 55604	218-387-1750
Kawishiwi: Ely, MN 55731	218-365-7600
LaCroix: Cook, MN 55723	218-666-5251
Tofte: Tofte, MN 55615	218-663-7981

Missouri

Mark Twain National Forest

401 Fairgrounds Rd.
Rolla, MO 65401
Phone: 573-364-4621
Fax: 573-341-7475

Ranger Districts:

Ava/Cassville/Willow Springs:	
Ava, MO 65608	417-683-4428
Cedar Creek: Fulton, MO 65251	573-592-1400
Doniphan/Eleven Point:	
Doniphan, MO 63935	573-996-2153
Houston/Rolla: Houston, MO 65843	417-967-4194
Poplar Bluff: Poplar Bluff, MO 63901	573-785-1475
Potosi/Fredericktown:	
Potosi, MO 63664	573-438-5427
Salem: Salem, MO 65560	573-729-6656

New Hampshire & Maine

White Mountain National Forest

719 Main Street
Laconia, NH 03246-0772
Phone: 603-528-8721
Fax: 603-528-8783

Ranger Districts:

Ammonoosuc: Bethlehem, NH 03574	603-869-2626
Androscoggin: Gorham, NH 03581	603-466-2713
Evans Notch: Bethel, ME 04217	207-824-2134
Pemigewasset: Plymouth, NH 03264	603-536-1310
Saco: Conway, NH 03818	603-447-5448

Ohio

Wayne National Forest

219 Columbus Road
Athens, OH 45701-1399
Phone: 614-592-6644
Fax: 614-593-5974

Ranger Districts:

Athens: Athens, OH 45701	614-592-6644
Irononton: Pedro, OH 45659	614-532-3223
Marietta Unit (Athens Ranger District):	
Marietta, OH 45750	614-373-9055

Pennsylvania

Allegheny National Forest

222 Liberty Street, Box 847
Warren, PA 16365
Phone: 814-723-5150
Fax: 814-726-1465

Ranger Districts:

Bradford: Bradford, PA 16701	814-362-4613
Marienville: Marienville, PA 16239	814-927-6628
Ridgway: Ridgway, PA 15853	814-776-6172

Vermont

Green Mountain and Finger Lakes

231 N. Main Street
Rutland, VT 05701
Phone: 802-747-6700
Fax: 802-747-6766

Green Mountain Ranger Districts:

Manchester:
Manchester Center, VT 05255 802-362-2307
Middlebury: Middlebury, VT 05753 802-388-4362
Rochester: Rochester, VT 05767 802-767-4261

Finger Lakes Ranger District:

Hector: Hector, NY 14865 607-546-4470

West Virginia

Monongahela National Forest

USDA Bldg., 200 Sycamore Street
Elkins, WV 26241-3962
Phone: 304-636-1800
Fax: 304-636-1875

Ranger Districts:

Cheat: Parsons, WV 26287 304-478-3251
Gauley: Richwood, WV 26261 304-846-2695
Greenbrier: Bartow, WV 24920 304-456-3335
Marlinton: Marlinton, WV 24954 304-799-4334
Potomac: Petersburg, WV 26847 304-257-4488
White Sulphur:
White Sulphur Springs, WV 24986 304-536-2144

Wisconsin

Chequamegon National Forest

1170 4th Avenue South
Park Falls, WI 54552
Phone: 715-762-2461
Fax: 715-762-5179

Ranger Districts:

Park Falls: Park Falls, WI 54552 715-762-2461
Glidden: Glidden, WI 54527 715-264-2511
Medford: Medford, WI 54551 715-748-4875
Hayward: Hayward, WI 54843 715-634-4821
Washburn: Washburn, WI 54891 715-373-2667

Nicolet National Forest

Federal Bldg., 68 S. Stevens
Rhineland, WI 54501
Phone: 715-362-1300
Fax: 715-362-1359

Ranger Districts:

Eagle River: Eagle River, WI 54521 715-479-2827
Florence: Florence, WI 54121 715-528-4464
Lakewood: Lakewood, WI 54138 715-276-6333
Laona: Laona, WI 54541 715-764-4481
Oconto River Seed Orchard:
White Lake, WI 54491 715-276-7400

USFS REGION 10

(Alaska Region)

Alaska

Regional Office

709 W. 9th Street • P.O. Box 21628
Juneau, AK 99802-1628 • Phone: 907-586-8863

Alaska

Chugach National Forest

3301 "C" Street, Suite 300
Anchorage, AK 99503-3998
Phone: 907-271-2500
Fax: 907-271-3992

Ranger Districts:

Cordova:
Calvin Baker, Cordova, AK 99574 907-424-7661
Glacier:
John Dorio, Girdwood, AK 99587 907-783-3242
Seward:
Duane Harp, Seward, AK 99664 907-224-3374

Tongass National Forest-Chatham Area

204 Siginaka Way
Sitka, AK 99835
Phone: 907-747-6671
Fax: 907-747-4331

Ranger Districts:

Hoonah: Hoonah, AK 99829	907-945-3631
Juneau: Juneau, AK 99801	907-586-8800
Sitka: Sitka, AK 99835	907-747-7761
Yakutat: Yakutat, AK 99689	907-784-3359
Admiralty National Monument/ Kootznawoo Wilderness:	907-586-8790

Tongass National Forest-Ketchikan Area

Federal Bldg
Ketchikan, AK 99901
Fax: 907-228-6215

Ranger Districts:

Craig: Craig, AK 99921	907-826-3271
Ketchikan: Ketchikan, AK 99901	907-225-2148
Thorne Bay: Thorne Bay, AK 99919	907-828-3304
Misty Fiords National Monument: Ketchikan, AK 99901	907-225-2148

Tongass National Forest-Stikine Area

Box 309, Petersburg, AK 99833
Phone: 907-772-3841
Fax: 907-772-5895

Ranger Districts:

Petersburg: Petersburg, AK 99833	907-772-3871
Wrangell: Wrangell, AK 99929	907-874-2323

Wireless Glossary

A Carrier: *See non-wireline cellular company.*

"A-Block" Carrier: A 30 MHz PCS provider serving a Major Trading Area (MTA) in the 1850-1865 MHz and 1930-1945 MHz frequency blocks.

A/B Switch: A feature found on all new cellular telephones permitting the user to select either the "A" (non-wireline) carrier or the "B" (wireline) carrier when roaming away from home.

Access Fee: A special fee that local telephone companies are allowed to charge all telephone customers for the right to connect with the local phone network. The fee is paid by wireless subscribers, as is a federal three percent telephone excise tax.

Advanced Intelligent Networks: Systems that allow a wireless user to make and receive phone calls while roaming in areas outside the user's "home" network. These networks, which rely on computers and sophisticated switching techniques, also provide many Personal Communications Services features such as "one person/one phone."

Air Time: Actual time spent talking on the wireless telephone. Most carriers bill customers based on how many minutes of air time they use each month. The more minutes of time spent talking on the phone, the higher the bill.

Alphanumeric: A message or other type of readout containing both letters ("alphas") and numbers ("numerics"). Regarding wireless, "alphanumeric memory dial" is a special type of dial-from-memory option that displays both the name of the individual and that individual's phone number on the wireless phone handset. The name also can be recalled by using the letters on the phone keypad. By contrast, standard memory dial recalls numbers from number-only locations.

AMPS, Advanced Mobile Phone Service: The term used by AT&T's Bell Laboratories (prior to the break-up of the Bell System in 1984) to refer to its cellular technology. The AMPS standard has been the foundation for the industry in the United States, although it has been slightly modified in recent years. "AMPS-compatible" means equipment designed to work with most cellular telephones.

Analog: The traditional method of modulating radio signals so that they can carry information. AM (amplitude modulation) and FM (frequency modulation) are the two most common methods of analog modulation. Though most U.S. cellular systems today carry phone conversations using analog, many now offer digital trans-

mission. *See also Digital Modulation.*

Antenna: A device for transmitting and/or receiving signals. The size and shape of antennas are determined, in large part, by the frequency of the signal they are receiving. Antennas are used on both the wireless handset and the base station.

B Carrier: *See wireline cellular company.*

"B Block" Carrier: A 30 MHz PCS provider serving a Major Trading Area (MTA) in the 1870-1885 MHz and 1950-1965 MHz frequency blocks.

Bandwidth: A relative range of frequencies that can carry a signal without distortion on a transmission medium.

Base Station: The central radio transmitter/receiver that maintains communications with mobile radiotelephones within a given range (typically a cell site). *See also Cell, Cell Site.*

BTA, Basic Trading Area: A service area designed by Rand McNally and adopted by the FCC to promote the rapid deployment and ubiquitous coverage of Personal Communications Services (PCS). Built from county boundaries, BTAs generally cover a city and its surrounding environs. BTAs are component parts of Major Trading Areas (MTAs). There are 493 BTAs in the United States. *See also MTA.*

"C-Block" Carrier: A 30 MHz PCS provider serving a Major Trading Area (MTA) in the 1895-1910 MHz and 1975-1990 MHz frequency blocks.

CDMA, Code Division Multiple Access: A spread-spectrum approach to digital transmission. With CDMA, each conversation is digitized and then tagged with a code. The mobile phone is then instructed to decipher only a particular code to pluck the right conversation off the air. The process can be compared in some ways to an English-speaking person picking out in a crowded room of French speakers the only other person who is speaking English. *See also Digital Modulation.*

CDPD, Cellular Digital Packet Data: Technology that allows data files to be broken into a number of "packets" and sent along idle channels of existing cellular voice networks.

Cell: The basic geographic unit of a wireless system. Also, the basis for the generic industry term "cellular." A city or county is divided into smaller "cells," each of which is equipped with a low-powered radio transmitter/receiver. The cells can vary in size depending upon terrain, capacity demands, etc. By controlling the transmission power, the radio frequencies assigned to one cell can be limited to the boundaries of that cell. When a wireless phone moves from one cell toward another, a computer at the Mobile Telephone Switching Office (MTSO) monitors the movement and at the proper time, transfers (or "hands off") the phone call to the new cell.

and another radio frequency. The hand-off is performed so quickly that it's unnoticeable to the callers. *See also Base Station, Cell Site.*

Cell Site: The location at which communications equipment is located for each cell. A cell site includes antennas, a support structure for those antennas, and communications equipment to connect the site to the rest of the wireless system. This equipment is normally housed in a small shelter at the based of the site. Although many antennas are placed on towers, where existing structures provide for a site that is higher than its surroundings, antennas will be placed on them. For example, antennas have been placed on water towers, grain silos and building rooftops. *See also Base Station, Cell.*

Cell Splitting: A means of increasing the capacity of a wireless system by subdividing or splitting cells into two or more smaller cells.

CGSA, Cellular Geographic Service Area: The actual area in which a cellular company provides cellular service. This area may be somewhat smaller than the MSA or RSA surrounding it. *See also MSA, RSA.*

Channel: A path along which a communications signal is transmitted.

Co-location: The siting of two or more separate companies' wireless antennas on the same support structure. *See also Cell Site.*

CMRS, Commercial Mobile Radio Service: The regulatory classification that the FCC uses to govern all commercial wireless service providers, including Personal Communications Services, cellular and Enhanced Specialized Mobile Radio.

Crosstalk: Interference in a communications channel caused by signals present in a nearby channel.

"D Block" Carrier: A 10 MHz PCS provider serving a Basic Trading Area (BTA) in the 1865-1870 MHz and 1945-1950 MHz frequency blocks.

Digital Modulation: A method of encoding information for transmission. Information (in most cases a voice conversation) is turned into a series of digital bits — the 0s and 1s of computer binary language. At the receiving end, the information is reconverted to its original form. Digital transmission offers a cleaner signal and is virtually immune to the problems of analog modulation such as fading and static. (To appreciate the difference, compare the fidelity of a standard LP record with that of a digital compact disk). Digital transmission has been embraced by the wireless industry because it offers major gains in capacity compared to analog. *See also CDMA, TDMA, and GSM.*

"E Block" Carrier: A 10 MHz PCS provider serving a Basic Trading Area (MTA) in the 1885-1890 MHz and 1965-1970 MHz frequency blocks.

Electromagnetic Compatibility: The ability of equipment or systems to be used in their intended environment within designed efficiency levels without causing or receiving degradation due to unintentional electromagnetic interference. Proper shielding of devices reduces interference.

ESMR, Enhanced Specialized Mobile Radio: Digital mobile telephone services offered to the public over channels previously used for two-way analog dispatch services. *See also SMR.*

ESN, Electronic Serial Number: The unique number assigned to a wireless phone by the manufacturer. According to the Federal Communications Commission, the ESN is to be fixed and unchangeable — a sort of unique fingerprint for each phone. *See also MIN.*

ETACS, Extended Total Access Communications Systems: The conventional wireless technology used in the United Kingdom and other countries. It was developed from the U.S. AMPS technology.

"F Block" Carrier: A 10 MHz PCS provider serving a Basic Trading Area (MTA) in the 1890-1895 MHz and 1970-1975 MHz frequency blocks.

FCC, Federal Communications Commission: The government agency responsible for regulating telecommunications in the United States.

FDMA, Frequency Division Multiple Access: Method of radio transmission that allows multiple users to access a group of radio frequency bands without interference.

Frequency: A measure of the energy, as one or more waves per second, in an electrical or light-wave information signal. A signal's frequency is stated in either cycles-per-second or Hertz (Hz). *See also Hertz.*

Frequency Re-use: The ability to use the same frequencies repeatedly within a single system, made possible by the basic design approach for wireless. Since each cell is designed to use radio frequencies only within its boundaries, the same frequencies can be re-used in other cells not far away with little potential for interference. The concept is akin to an FM radio station in Chicago using the same frequency as one in Denver without interference. The re-use of frequencies is what allows a wireless system to handle a huge number of calls with a limited number of channels.

GHz, GigaHertz: Billions of Hertz. Personal Communications Services operate in the 1.9 GHz band of the electromagnetic spectrum. *See also Hertz, KHz, MHz.*

GSM: Groupe Speciale Mobile or Global Standard for Mobile. A time-division based standard for digital wireless transmissions. It is most prevalently used in Europe. *See also Digital Modulation, TDMA.*

Guyed: A type of wireless transmission tower that is supported by thin guy wires. *See also Monopole.*

Hand-off: The process by which the Mobile Telephone Switching Office (MTSO) passes a wireless phone conversation from one radio frequency in one cell to another radio frequency in another cell. It is performed quickly enough that callers don't notice its occurrence.

Hands-Free: An important safety feature that permits a driver to use a wireless car phone without lifting or holding the handset.

Hertz: A measurement of electromagnetic energy, equivalent to one "wave" or cycle per second. *See also KHz, MHz, GHz.*

IXC, Interexchange Carrier: A long-distance phone company.

KHz, KiloHertz: Thousands of Hertz. Each wireless phone call occupies only a few KiloHertz. *See also Hertz, MHz, GHz.*

LEC, Local Exchange Company: The traditional, local, wired phone company.

Message Alert: A light or other indicator on a wireless phone that notifies a user that a call has come in. a useful feature especially if the wireless subscriber has voice mail. Also called a "call-in-absence" indicator.

MHz: MegaHertz. (millions of Hertz). Cellular and ESMR systems operate in the 800 and 900 MHz bands of the electromagnetic spectrum. *See also Hertz, KHz, GHz.*

MIN, Mobile Identification Number: A number assigned by the wireless carrier to a customer's phone. The MIN is meant to be changeable, since the phone could change hands or a customer could move to another city. *See also ESN.*

Mobile Satellite Service: Communications transmission service provided by satellites. A single satellite can provide coverage to the entire United States.

Mobile, (or Car) Phone: A type of wireless phone which are car-installed and used with an antenna on the outside of the car. The equipment is powered by the car's battery, and in models that are installed in the trunk, only the handset is mounted near the driver. Operating at powers up to 3 watts, a mobile phone often provides a stronger signal than a portable. *See also Portable, Transportable.*

Monopole: A slender self-supporting tower on which wireless antennas can be placed. *See also Guyed.*

MSA, Metropolitan Statistical Area: An MSA denotes one of the 306 largest urban population markets as designated by the U.S. government. Two cellular operators are licensed in each MSA. *See also CGSA, RSA.*

MSC, Mobile Switching Center: *See MTSO.*

MTA, Major Trading Area: A service area designed by Rand McNally and adopted by the FCC to promote the rapid deployment and ubiquitous coverage of Personal Communications Services (PCS). Built from Basic Trading Areas (BTAs), MTAs are centered on a major city and generally cover an area the size of a state. There are 51 MTAs in the United States. *See also BTA.*

MTSO: Mobile Telephone Switching Office. The central computer that connects a wireless phone call to the public telephone network. The MTSO controls the entire system's operations, including call monitoring, billing and hand-offs.

NAM, Number Assignment Module: The NAM is the electronic memory in the wireless phone that stores the telephone number and electronic serial number.

Narrowband PCS: The name commonly associated with advanced paging and two-way messaging services.

No-answer Transfer: A service provided by some wireless carriers which automatically transfers an incoming wireless call to another phone number if the wireless subscriber is unable to answer. Most no-answer transfer systems will automatically transfer the call on the first ring if the wireless phone is turned off, but will not make the transfer until the third or fourth ring if the phone is on.

Non-wireline Cellular Company: The Block "A" carrier. The "A" originally stood for "alternate," i.e. the non-Bell or "B" carrier in a market. The FCC, in setting up the licensing and regulatory rules for cellular, decided to license two cellular systems in each market. It reserved one for the local telephone company and opened a second system — the Block A system — to other interested applicants. The distinction between Block A and Block B was meaningful only during the licensing phase at the FCC. Once a system is constructed, it can be sold to anyone. Thus in some markets today, both the A and B systems are owned by telephone companies — one happens to be the local phone company for the area and the other is a phone company that decided to buy a cellular system outside its home territory. *See also Wireline Cellular Company.*

Off-peak: The periods of time (usually after the business day or on weekends) during which carriers offer discounted air time charges.

PCS, Personal Communications Services: FCC terminology describing two-way, personal, digital wireless communications systems. Several traditional cellular companies now offer PCS, or "PCS-like" services.

PCS-1900: The North American GSM PCS standard. *See also GSM, Digital Modulation.*

Peak: The time during which wireless customers can expect to pay full service rates.

Personal Digital Assistants: Portable computing devices capable of transmitting data. These devices make possible services such as paging, data messaging, electronic mail, stock quotations, handwriting recognition, personal computing, facsimile, date book and other information-handling capabilities.

POP: Short for population. One "POP" equals one person. For example, a carrier whose market contains 1 million people is said to offer service to 1 million POPs. In the wireless industry, systems are valued financially based on the population of the market served.

Portable: Portable phones are small, hand-held units which can fit in a pocket, briefcase or purse. Using an attachment, many can be plugged into an automobile cigarette lighter to save battery power. As a smaller, lighter phone, a portable operates at power levels of up to 6/10ths of a watt. Furthermore, digital phones are almost always portable phones. *See also Mobile, Transportable.*

Roaming: The ability to use a wireless phone to make and receive calls in places outside one's home calling area.

RSA, Rural Service Area: One of the 428 FCC-designated rural markets across the United States. There are two cellular carriers licensed in each RSA. *See also MSA, CGSA.*

Satellite/Wireless Phone: A dual-mode wireless phone that uses Mobile Satellite Service when it is out of range of the wireless network coverage.

Service Charge: The amount paid each month to receive wireless service. This amount is fixed and is to be paid regardless of how much or how little the wireless phone is used.

SMR, Specialized Mobile Radio: Private business service using mobile radiotelephones and base stations similar to other wireless services. It is usually used in dispatch applications, such as delivery companies or taxicab organizations. Specialized Mobile Radio is the forerunner of ESMR service. *See also ESMR.*

SMS, Short Message Service: A means to send or receive short alphanumeric messages to or from a wireless phone.

Standby Time: The amount of time a fully charged wireless portable or transportable phone can be on before the phone's battery will lose power. *See also Talk Time.*

Talk Time: The length of time one can talk on a portable or transportable wireless phone without recharging the battery. The battery capacity of a phone is usually expressed in terms of "minutes of talk time" or "hours of standby time." When one is talking, the phone draws more power from the battery. *See also Standby Time.*

TDMA, Time Division Multiple Access: A method of digital wireless communications transmission allowing a large number of users to access (in sequence) a single radio frequency channel without interference by allocating unique time slots to each user within each channel. *See also Digital Modulation.*

Transportable Phone: Transportable phones, or "bag phones" are essentially car phones with the handset, antenna and battery packaged together in a carrying case. They can be plugged into a car's cigarette lighter or can operate off of a portable battery pack for use anywhere. Like a mobile phone, transportable phones can operate at up to 3 watts of power. Although technically "portable," the transportable should not be confused with the handheld, one-piece wireless phone. *See also Portable, Mobile.*

Vocoder: A device used to convert speech into digital signals. *See also Digital Modulation.*

Voice Mail: A computerized answering service that answers a call, plays a greeting and records a message. Depending on the sophistication of the service, it also can notify the subscriber, via pager, that he or she has received a call. Also called voice messaging.

Voice-activated Dialing: A feature that permits one to dial a phone number by speaking to a wireless phone instead of using a keypad. The feature contributes to convenience as well as driving safety.

Wireless: Describing radio-based systems that allow transmission of telephone and/or data signals through the air without a physical connection, such as a metal wire or fiber optic cable.

Wireline Cellular Carrier: The Block "B" carrier. Under the FCC's initial cellular licensing procedures, the Block B carrier is the local telephone company's licensee. The FCC reserved one of the two systems in every cellular market for the local telephone (or "wireline") company. With initial licensing complete, the distinction has slowly disappeared. The local phone company can sell its cellular system to anyone. *See also Non-Wireline Cellular Carrier.*

APPLICATION FOR TRANSPORTATION AND
UTILITY SYSTEMS AND FACILITIES
ON FEDERAL LANDS

FORM APPROVED
OMB NO. 1004-0060
Expires: August 31, 1998

FOR AGENCY USE ONLY

Application Number

Date filed

NOTE: Before completing and filing the application, the applicant should completely review this package and schedule a preapplication meeting with representatives of the agency responsible for processing the application. Each agency may have specific and unique requirements to be met in preparing and processing the application. Many times, with the help of the agency representative, the application can be completed at the preapplication meeting.

1. Name and address of applicant (include zip code)

2. Name, title, and address of authorized agent if different from Item 1 (include zip code)

3. TELEPHONE (area code)

Applicant

Authorized Agent

4. As applicant are you? (check one)

- a. ☐ Individual
b. ☐ Corporation*
c. ☐ Partnership/Association*
d. ☐ State Government/State Agency
e. ☐ Local Government
f. ☐ Federal Agency

* If checked, complete supplemental page

5. Specify what application is for: (check one)

- a. ☐ New authorization
b. ☐ Renewing existing authorization No.
c. ☐ Amend existing authorization No.
d. ☐ Assign existing authorization No.
e. ☐ Existing use for which no authorization has been received*
f. ☐ Other*

* If checked, provide details under Item 7

6. If an individual, or partnership are you a citizen(s) of the United States? ☐ Yes ☐ No

7. Project description (describe in detail): (a) Type of system or facility, (e.g., canal, pipeline, road); (b) related structures and facilities; (c) physical specifications (length, width, grading, etc.); (d) term of years needed; (e) time of year of use or operation; (f) Volume or amount of product to be transported; (g) duration and timing of construction; and (h) temporary work areas needed for construction (Attach additional sheets, if additional space is needed.)

8. Attach a map covering area and show location of project proposal

9. State or Loc government approval: ☐ Attached ☐ Applied for ☐ Not required

10. Nonreturnable application fee: ☐ Attached ☐ Not required

11. Does project cross international boundary or affect international waterways? ☐ Yes ☐ No (If "yes," indicate on map)

12. Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

13a. Describe other reasonable alternative routes and modes considered.

b. Why were these alternatives not selected?

c. Give explanation as to why it is necessary to cross Federal Lands.

14. List authorizations and pending applications filed for similar projects which may provide information to the authorizing agency. (Specify number, date, code, or name)

15. Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal (construction, operation, and maintenance); (b) estimated cost of next best alternative; and (c) expected public benefits.

16. Describe probable effects on the population in the area, including the social and economic aspects, and the rural lifestyles.

17. Describe likely environmental effects that the proposed project will have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) the control or structural change on any stream or other body of water; (e) existing noise levels; and (f) the surface of the land, including vegetation, permafrost, soil, and soil stability.

18. Describe the probable effects that the proposed project will have on (a) populations of fish, plantlife, wildlife, and marine life, including threatened and endangered species; and (b) marine mammals, including hunting, capturing, collecting, or killing these animals.

19. State whether any hazardous material, as defined in this paragraph, will be used, produced, transported or stored on or within the right-of-way or any of the right-of-way facilities, or used in the construction, operation, maintenance or termination of the right-of-way or any of its facilities. "Hazardous material" means any substance, pollutant or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq., and its regulations. The definition of hazardous substances under CERCLA includes any "hazardous waste" as defined in the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, 42 U.S.C. 9601 et seq., and its regulations. The term hazardous materials also includes any nuclear or byproduct material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq. The term does not include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance under CERCLA Section 101(14), 42 U.S.C. 9601(14), nor does the term include natural gas.

20. Name all the Department(s)/Agency(ies) where this application is being filed.

I HEREBY CERTIFY. That I am of legal age and authorized to do business in the State and that I have personally examined the information contained in the application and believe that the information submitted is correct to the best of my knowledge.

Signature of Applicant

Date

Title 18, U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

SUPPLEMENTAL

NOTE: The responsible agency(ies) will provide additional instructions

CHECK APPROPRIATE
BLOCK

I - PRIVATE CORPORATIONS

ATTACHED

FILED*

a. Articles of Incorporation

☐
☐

b. Corporation Bylaws

☐
☐

c. A certification from the State showing the corporation is in good standing and is entitled to operate within the State.

☐
☐

d. Copy of resolution authorizing filing

☐
☐

e. The name and address of each shareholder owning 3 percent or more of the shares, together with the number and percentage of any class of voting shares of the entity which such shareholder is authorized to vote and the name and address of each affiliate of the entity together with, in the case of an affiliate controlled by the entity, the number of shares and the percentage of any class of voting stock of that affiliate owned, directly or indirectly, by that entity, and in the case of an affiliate which controls that entity, the number of shares and the percentage of any class of voting stock of that entity owned, directly or indirectly, by the affiliate.

☐
☐

f. If application is for an oil or gas pipeline, describe any related right-of-way or temporary use permit applications, and identify previous applications.

☐
☐

g. If application is for an oil and gas pipeline, identify all Federal lands by agency impacted by proposal.

☐
☐

II - PUBLIC CORPORATIONS

a. Copy of law forming corporation

☐
☐

b. Proof of organization

☐
☐

c. Copy of Bylaws

☐
☐

d. Copy of resolution authorizing filing

☐
☐

d. If application is for an oil or gas pipeline, provide information required by Item "I-f" and "I-g" above.

☐
☐

III - PARTNERSHIP OR OTHER UNINCORPORATED ENTITY

a. Articles of association, if any

☐
☐

b. If one partner is authorized to sign, resolution authorizing action is

☐
☐

c. Name and address of each participant, partner, association, or other

☐
☐

d. If application is for an oil or gas pipeline, provide information required by Item "I-f" and "I-g" above.

☐
☐

* If the required information is already filed with the agency processing this application and is current, check block entitled "Filed." Provide the file identification information (e.g., number, date, code, name). If not on file or current, attach the requested information.

NOTICE

The Privacy Act of 1974 provides that you be furnished the following information in connection with information required by this application for an authorization.

AUTHORITY: 16 U.S.C. 310; 5 U.S.C. 301.

PRINCIPAL PURPOSE: The information is to be used to process the application.

ROUTINE USES: (1) The processing of the applicant's request for an authorization. (2) Documentation for public information. (3) Transfer to appropriate Federal agencies when concurrence is required prior to granting a right in public lands or resources. (4)(5) Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions.

EFFECT OF NOT PROVIDING INFORMATION: Disclosure of the information is voluntary. If all the information is not provided, the application may be rejected.

DATA COLLECTION STATEMENT

The Federal agencies collect this information from applicants requesting right-of-way, permit, license, lease, or certification for the use of Federal lands.

The Federal agencies use this information to evaluate the applicant's proposal.

The public is obligated to submit this form if they wish to obtain permission to use Federal lands.

A reproducible copy of this form may be obtained from the Bureau of Land Management, Division of Lands, 1620 L Street, Rm. 204, Washington, D.C. 20036.

APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS
AND FACILITIES ON FEDERAL LANDS

GENERAL INFORMATION
ALASKA NATIONAL INTEREST LANDS

This application will be used when applying for a right-of-way, permit, license, lease, or certificate for the use of Federal lands which lie within conservation system units and National Recreation or Conservation Areas as defined in the Alaska National Interest Lands Conservation Act. Conservation system units include the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, National Trails System, National Wilderness Preservation System, and National Forest Monuments.

Transportation and utility systems and facility uses for which the application may be used are:

1. Canals, ditches, flumes, laterals, pipes, pipelines, tunnels, and other systems for the transportation of water.
2. Pipelines and other systems for the transportation of liquids other than water, including oil, natural gas, synthetic liquid and gaseous fuels, and any refined product produced therefrom.
3. Pipelines, slurry and emulsion systems, and conveyor belts for transportation of solid materials.
4. Systems for the transmission and distribution of electric energy.
5. Systems for transmission or reception of radio, television, telephone, telegraph, and other electronic signals, and other means of communications.
6. Improved rights-of-way for snow machines, air cushion vehicles, and all-terrain vehicles.
7. Roads, highways, railroads, tunnels, tramways, airports, landing strips, docks, and other systems of general transportation.

This application must be filed simultaneously with each Federal department or agency requiring authorization to establish and operate your proposal.

In Alaska, the following agencies will help the applicant file an application and identify the other agencies the applicant should contact and possibly file with:

Department of Agriculture
Regional Forester, Forest Service (USFS)
Federal Office Building, P.O. Box 21628
Juneau, Alaska 99802-1628
Telephone: (907) 586-7847 (or a local Forest Service Office)

Department of the Interior
Bureau of Indian Affairs (BIA)
Juneau Area Office
9109 Mendenhall Mall Road, Suite 5, Federal Building Annex
Juneau, Alaska 99802
Telephone: (907) 586-7177

Bureau of Land Management (BLM)
222 West 7th Ave., Box 13
Anchorage, Alaska 99513-7599
Telephone: (907) 271-5477 (or a local BLM Office)

National Park Service (NPS)
Alaska Regional Office, 2525 Gambell St., Rm. 107
Anchorage, Alaska 99503-2892
Telephone: (907) 257-2585

U.S. Fish & Wildlife Service (FWS)
Office of the Regional Director
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: (907) 786-3440

Note-Filings with any Interior agency may be filed with any office noted above or with the: Office of the Secretary of the Interior, Regional Environmental Officer, Box 120, 1675 C Street, Anchorage, Alaska 99513.

Department of Transportation
Federal Aviation Administration
Alaska Region AAL-4, 222 West 7th Ave., Box 14
Anchorage, Alaska 99513-7587
Telephone: (907) 271-5285

NOTE - The Department of Transportation has established the above central filing point for agencies within that Department. Affected agencies are: Federal Aviation Administration (FAA), Coast Guard (USCG), Federal Highway Administration (FHWA), Federal Railroad Administration (FRA).

OTHER THAN ALASKA NATIONAL INTEREST LANDS

Use of this form is not limited to National Interest Conservation Lands of Alaska.

Individual departments/agencies may authorize the use of this form by applicants for transportation and utility systems and facilities on other Federal lands outside those areas described above.

For proposals located outside of Alaska, applications will be filed at the local agency office or at a location specified by the responsible Federal agency.

SPECIFIC INSTRUCTIONS
(Items not listed are self-explanatory)

- Item
- 7 Attach preliminary site and facility construction plans. The responsible agency will provide instructions whenever specific plans are required.
 - 8 Generally, the map must show the section(s), township(s), and range(s) within which the project is to be located. Show the proposed location of the project on the map as accurately as possible. Some agencies require detailed survey maps. The responsible agency will provide additional instructions.
 - 9, 10, and 12 - The responsible agency will provide additional instructions.
 - 13 Providing information on alternate routes and modes in as much detail as possible, discussing why certain routes or modes were rejected and why it is necessary to cross Federal lands will assist the agency(ies) in processing your application and reaching a final decision. Include only reasonable alternate routes and modes as related to current technology and economics.
 - 14 The responsible agency will provide instructions.
 - 15 Generally, a simple statement of the purpose of the proposal will be sufficient. However, major proposals located in critical or sensitive areas may require a full analysis with additional specific information. The responsible agency will provide additional instructions.
 - 16 through 19 - Providing this information in as much detail as possible will assist the Federal agency(ies) in processing the application and reaching a decision. When completing these items, you should use a sound judgment in furnishing relevant information. For example, if the project is not near a stream or other body of water, do not address this subject. The responsible agency will provide additional instructions.

Application must be signed by the applicant or applicant's authorized representative.

Public reporting burden for this form is estimated to vary from 30 minutes to 25 hours per response, with an average of 2 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management, (Alternate) Bureau Clearance Officer, (WO-873), 1849 C Street, N.W., Washington, D.C. 20240, and the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

If additional space is needed to complete any item, please put the information on a separate sheet of paper and identify it as "Continuation of Item".

USDA-Forest Service SPECIAL-USE APPLICATION AND REPORT (Ref.: FSM 2712, 36 CFR 251.54)	FOREST SERVICE USE ONLY			
	Date Received (mo/day/yr) ____/____/____	Region Number ____	State Code ____	County Code ____
INSTRUCTIONS Applicant should request a meeting with the Forest Service representative responsible for processing the application, prior to completing this form. This meeting will allow a discussion of the form's requirements and identify those items to be omitted.	Congressional Dist. Number ____	Forest Code (Admin. Unit No.) ____	Unit ID Symbol (NFFID No.) ____	
	Ranger Dist. No. (Resp. Dist.) ____	User Number ____	Kind of Use Code ____	

PART I—APPLICATION (Applicant Completes)

1. Applicant Name and Address (include Zip Code)	2. Authorized Agent Name, Title and Address (include Zip Code) if different from Item 1.	3. Area Code and Telephone Number a. Applicant's _____ b. Authorized Agent's _____
4. As applicant are you? (Mark one box with "X") a. <input type="checkbox"/> Individual b. <input type="checkbox"/> Corporation* c. <input type="checkbox"/> Partnership/Association* d. <input type="checkbox"/> State Government/State Agency e. <input type="checkbox"/> Local Government f. <input type="checkbox"/> Federal Agency * If marked "X", complete PART II.		5. Specify what application is for: (Mark one box with "X") a. <input type="checkbox"/> New authorization* b. <input type="checkbox"/> Renew existing authorization c. <input type="checkbox"/> Amend existing authorization* d. <input type="checkbox"/> Other* * If marked "X", provide details under Item 7.
6. If you are an individual or partnership, are you also a citizen(s) of the United States? <input type="checkbox"/> Yes <input type="checkbox"/> No		
7. Describe in detail the land use, including: (a) type of use, activity, or facility; (b) related structures and facilities; (c) physical specifications (length, width, acres, etc.); (d) term of years needed; (e) time of year of use or operation; (f) duration and timing of construction; (g) temporary work areas needed for construction; and (h) anticipated need for future expansion. (If extra space is needed, use Page 3, REMARKS).		
8. Attach map covering area and show location of proposed use and/or furnish legal description of the land.		
9. Give statement of your technical and financial capability to construct, operate, and terminate the use for which authorization is requested, including the protection and restoration of Federal lands. (If extra space is needed, use page 3, REMARKS).		

10a. Describe other reasonable alternative proposals considered.

10b. Give explanation of why it is necessary to utilize Federal lands and why the alternatives in item 10a were not selected.

11. Provide statement of need for proposed use, including the economic feasibility and items such as: (a) cost of proposal (construction, operation, and maintenance); (b) estimated cost of next best alternative; and (c) expected public benefits. (If extra space is needed, use page 3, REMARKS).

12. Describe probable effects on the area population, including social and economic aspects, and rural lifestyles.

13. Describe likely environmental effects that the proposed use will have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) control or structural change on any stream or other body of water; (e) existing noise levels; (f) land surface, including vegetation, permafrost, soil and soil stability; and (g) populations of fish, plant, wildlife and marine life, including threatened and endangered species. (If extra space is needed, use page 3, REMARKS).

14. Describe what actions will be taken to protect the environment from the effects of the proposed use.

15. Name all Federal, State, County or other department(s)/agency(ies) where an application for this is being filed. Attach appropriate license, building permit, certificate or other approval document.

I HEREBY CERTIFY, that I am of legal age and authorized to do business in the State and that I have personally examined the information contained in the application and that this information is correct to the best of my knowledge.

16a. Applicant's Signature (Sign in ink)

16b. Date

Title 18, U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

PART II—SUPPLEMENTAL INFORMATION (Applicant Completes)

MARK "X" IN APPROPRIATE BOX BELOW

I—PRIVATE CORPORATIONS

ATTACHED

FILED*

a. Articles of Incorporation

☐
☐

b. Corporation Bylaws

☐
☐

c. A certification from the State showing the corporation is in good standing and is entitled to operate within the State.

☐
☐

d. Copy of resolution authorizing filing

☐
☐

e. The name and address of each shareholder owning 3 percent or more of the shares, together with the number and percentage of any class of voting shares of the entity which such shareholder is authorized to vote and the name and address of each affiliate of the entity together with, in the case of an affiliate controlled by the entity, the number of shares and the percentage of any class of voting stock of that affiliate owned, directly or indirectly, by that entity, and in the case of an affiliate which controls that entity, the number of shares and the percentage of any class of voting stock of that entity owned, directly or indirectly, by the affiliate.

☐
☐

f. If application is for an oil or gas pipeline, describe any related right-of-way or temporary use permit applications, and identify previous applications.

☐
☐

g. If proposed land use involves other Federal lands identify each agency impacted by proposal.

☐
☐

II—PUBLIC CORPORATIONS

a. Copy of law forming corporation

☐
☐

b. Proof of organization

☐
☐

c. Copy of Bylaws

☐
☐

d. Copy of resolution authorizing filing

☐
☐

e. If application is for an oil or gas pipeline, provide information required by Item "I-f" and "I-g" above.

☐
☐

III—PARTNERSHIP OR OTHER UNINCORPORATED ENTITY

a. Articles of association, if any

☐
☐

b. If one partner is authorized to sign, resolution authorizing action is

☐
☐

c. Name and address of each participant, partner, association, or other

☐
☐

d. If application is for an oil or gas pipeline, provide information required by Item "I-f" and "I-g" above.

☐
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* If the required information is already filed with the Forest Service and is current, check box titled "Filed." Provide the file identification information (e.g., number, date, code, name and office at which filed). If not on file or current, attach requested information.

REMARKS: (This space is provided for more detailed responses to PART I.) Please indicate the item numbers to which these responses apply. Attach sheets, if additional space is needed.

Public reporting burden for this collection of information is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, CIRM, Room 404-W, Washington, D.C. 20250; and to the Office of Management and Budget, Paperwork Reduction Project OMB #0569-0082, Washington, D.C. 20503.

PART III—REPORT ON APPLICATION (Forest Officer Completes)

1. General description of the area and adaptability for the proposed use. Outline area on separate map if needed to clarify proposed use.

2. If previously under authorization indicate:

a. Name of Holder

b. Date Authorized

c. Date Closed

3. Describe any encumbrances on the land, such as withdrawals, power projects, easements, rights-of-way, mining claims, leases, etc. Show on map provided.

4. State approximate amount and kinds of timber to be cut, recommended stumpage prices, method of scaling; include recommendation on disposal of merchantable timber: (a) to holder at current damage appraisal or (b) to others than holder under regular timber sale procedure.

5a. Will proposed use conform to Forest Land and Resource Management Plan?

☐ Yes ☐ No

b. Has an Environmental Assessment been prepared?

☐ Yes (Attach) ☐ No

c. Has an Environmental Impact Statement (P.L. 91-190, 42 USC 4321) been prepared?

☐ Yes (Attach) ☐ No

(Note: If "No" is marked with an "X" in any of the above questions, explain in item 6 below.)

6. Recommendations, including any factors which might affect the granting of the authorization or future use of the land.

7. List mandatory and optional clauses which should be made a part of this authorization (See FSM 2780).

8. Fee recommendation (Describe here or on computation sheet attached).

9a. RECOMMEND Approval* or Disapproval*

b. Signature (Sign in ink)

c. Title

d. Date

10a. FINAL Approval* or Disapproval*

b. Signature (Sign in ink)

c. Title

d. Date

* Delete one by lining it out.

*U.S.GPO:1993-0-722-756/80194

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
COMMUNICATIONS USE LEASE

Issuing Office

Serial Number

(Lessee Name)

of

(Billing Address - 1)

(Billing Address -2)

(City)

(ST)

(Zip Code)

THIS LEASE, dated this _____ day of _____, 19____, by and between the UNITED STATES OF AMERICA, acting through the Bureau of Land Management, Department of the Interior (hereinafter called the "United States" or "Bureau of Land Management"), as authorized by the Act of October 21, 1976, (90 Stat. 2743; 43 U.S.C. 1701, et seq.), and _____, its agents, successors, and assigns (hereinafter called the "Lessee").

The United States and the Lessee are jointly referred to herein as the "Parties." As used herein, the "Authorized Officer" refers to the Bureau of Land Management official having the delegated authority to execute and administer this lease. Generally, unless otherwise indicated, such authority may be exercised by the Area Manager or District Manager for the public lands wherein the following described lands are located.

The United States, for and in consideration of the terms and conditions contained herein and the payment to the United States of a rental in advance by the Lessee, does hereby grant to the Lessee a lease for the following described lands in the County of _____, State of _____ : _____ (hereinafter called the "Property"). The Lessee accepts this lease and possession of the property, subject to any valid existing rights, and agrees not to use the property, or any part thereof, except as a site for only the construction, operation, maintenance, and termination of a communications facility.

The location of the property is shown generally on the site plan dated _____ for the _____ Communications Site which is attached and made part hereof as Exhibit A.

The dated and initialed exhibit(s), attached hereto, are incorporated into and made a part of this instrument as fully and effectively as if they were set forth herein in their entirety.

The parties agree that this lease is made subject to the following terms and a conditions.

I. Tenure, Renewal and Transferability

- A. This lease will terminate at one minute after midnight on _____ . Termination at the end of the lease term occurs by operation of law and does not require any additional notice or documentation by the Authorized Officer. This lease is not renewable; but the Lessee has the right to request a new lease pursuant to paragraph "C" below.

- B. The Lessee will undertake and pursue with due diligence construction and operation that is authorized by this lease. To the extent specified in Exhibit _____ , operation will commence on _____ .
(Date)

This lease will terminate if operation does not commence by that date, unless the parties agree in writing, in advance, to an extension of the commencement date.

- C. If the Lessee desires a new lease upon termination of this lease, the Lessee must notify the authorized Officer accordingly, in writing. The notice **must** be received by the Authorized Officer at least one year prior to the end of the lease term. The Authorized Officer will determine if the use should continue and, if it is to continue, if a new lease should be issued to the Lessee and under what

conditions. The Authorized Officer will require payment of any amounts owed the United States under any Bureau of Land Management authorization before issuance of another authorization.

- D. This lease is assignable with prior written approval of the Authorized Officer. Renting of space does not constitute an assignment under this clause.

II. Rental

- A. The Lessee **must** pay in advance an annual rental determined by the Authorized Officer in accordance with law, regulation, and policy. The annual rental will be adjusted by the Authorized Officer to reflect changes in fair market value, annual adjustments using the Consumer Price Index-Urban (CPI-U), changes in tenant occupancy, or phase-in of rental, if applicable.

- B. After the initial rental period, rental payments are due at the close of the first business day after January 1 of each calendar year for which a payment is due. Payments due the United States for this use **must** be deposited at _____ in the form of a check or money order payable to the Bureau of Land Management, DOI. Credit card payments (VISA and MasterCard) can be made in person, through the mail, or by

(Continued on reverse)

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telephone. This lease will terminate automatically if accrued rent is not received by the Bureau of Land Management within 90 calendar days after the initial due date for the payment of such rent.

- C. Pursuant to the regulations at 4 CFR Part 102.13, an interest charge will be assessed on any amount due but not received by the due date. Interest will accrue from the date the payment was due. Administrative costs will also be assessed in the event that two or more billing notices are required for unpaid accounts. In addition, an administrative penalty at a percentage rate prescribed by law or regulation will be assessed for failure to pay any portion of the debt that is more than 90 days past due. This paragraph survives the termination of this lease, regardless of cause.

Other late fee charges may be assessed in accordance with standard BLM accounting procedures and policy.

- D. Disputed rentals are due and payable on or before the due date.

III. Responsibilities of the Lessee

- A. The Lessee is authorized to rent space and provide other services to customers and/or tenants and may charge each customer/tenant a reasonable rental without discrimination for the use and occupancy of the facilities and services provided. The Lessee **must** impose no unreasonable restrictions nor any restriction restraining competition or trade practices. By October 15th of each year, the Lessee **must** provide the Authorized Officer a certified statement, listing all tenants and customers, by category of use, located within the facility on September 30th of that year.
- B. All development, operation and maintenance of the authorized facility, improvements, and equipment located on the property **must** be in accordance with stipulations in the communications site plan approved by the Authorized Officer. If required by the Authorized Officer, all plans for development, layout, construction, or alteration of improvements on the property as well as revisions of such plans, **must** be prepared by a licensed engineer, architect, and/or landscape architect. Such plans **must** be approved in writing by the Authorized Officer before commencement of any work. After completion, as-built plans, maps, surveys, or other similar information will be provided to the Authorized Officer and appended to the communications site plan.
- C. The Lessee **must** comply with applicable Federal, State, county, and municipal laws, regulations and standards for public health and safety, environmental protection, siting, construction, operation, and maintenance in exercising the rights granted by this lease. The obligations of the Lessee under this lease are not contingent upon any duty of the Authorized Officer, or other agent of the United States, to inspect the premises. A failure by the United States, or other governmental officials, to inspect is not a defense to noncompliance with any of the terms or conditions of this lease. Lessee waives all defenses of laches or estoppel against the United States. The Lessee **must** at all times keep the title of the United States to the property free and clear of all liens and encumbrances.
- D. Use of communications equipment is contingent upon the possession of a valid Federal Communications Commission (FCC) or Director of Telecommunications Management/Interdepartmental Radio Advisory Committee (DTM/IRAC) authorization, and the operation of the equipment is in strict compliance with applicable requirements of FCC or IRAC. A copy of each applicable license or authorization **must** at all times be maintained by the Lessee for each transmitter being operated. The Lessee **must** provide the Authorized Officer, when requested, with current copies of all licenses for equipment in or on facilities covered by this lease.

- E. The Lessee **must** ensure that equipment within his or her facility (including tenant and customer equipment) operates in a manner which will not cause harmful interference with the operation of existing equipment on or adjacent to the communications site. If the Authorized Officer or authorized official of the Federal Communications Commission (FCC) determines that the Lessee's use interferes with existing equipment, the Lessee **must** promptly take the necessary steps to eliminate or reduce the harmful interference to the satisfaction of the Authorized Officer or FCC official.

- F. When requested by the Authorized Officer, the Lessee must furnish technical information concerning the equipment located on the property.

IV. Liabilities

- A. The Lessee assumes all risk of loss to the authorized improvements.
- B. The Lessee **must** comply with all applicable Federal, State, and local laws, regulations, and standards, including but not limited to, the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq., the Comprehensive Environmental Response, Control, and Liability Act, 42 U.S.C. 9601 et seq., and other relevant environmental laws, as well as public health and safety laws and other laws relating to the siting, construction, operation, and maintenance of any facility, improvement, or equipment on the property.
- C. The Lessee **must** indemnify, defend, and hold the United States harmless for any violations incurred under any such laws and regulations or for judgments, claims, or demands assessed against the United States in connection with the Lessee's use or occupancy of the property. The Lessee's indemnification of the United States **must** include any loss by personal injury, loss of life or damage to property in connection with the occupancy or use of the property during the term of this lease. Indemnification **must** include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. This paragraph survives the termination or revocation of this lease, regardless of cause.
- D. The United States has no duty, either before or during the lease term, to inspect the property or to warn of hazards and, if the United States inspects the property, it will incur no additional duty nor any liability for hazards not identified or discovered through such inspections. This paragraph survives the termination or revocation of this lease, regardless of cause.
- E. The Lessee has an affirmative duty to protect from damage the land, property, and interests of the United States.

User notes for optional clause E(1)

1. Use clause E(1) in conjunction with clause E in situations in which the Authorized Officer determines that the risk to public lands, resources, or interest is greater than the Lessee's assets or ability to correct.
2. If Lessee is a State or political subdivision thereof and such entity has statutory or constitutional authorities limiting the amount of liability or indemnification payable, the Authorized Officer **must** prepare a risk assessment to determine the United State's use or occupancy. If the Authorized Officer determines, through the risk assessment that the potential for injury, loss, or damage caused by the State's use or occupancy is in excess of the State's liability limitation, the State **must** procure, as a requirement to be fulfilled before execution of this lease, insurance (see below), and name the United States, together with the State, as an insured on the policy(ies), in the amount determined in the risk assessment that exceeds the State's liability limitation.

E1. The Lessee must maintain \$

worth of insurance coverage, naming the United States additionally insured on the policy(ies), to partially fund the indemnification obligations of the Lessee for any and all losses due to personal injury, loss of life, or property damage, including fire suppression and hazardous waste costs. The Lessee **must** furnish proof of insurance (such as a surety bond, or certificate of insurance) to the Authorized Officer prior to execution of this lease and verify annually, and in writing, the insurance obligation to the Authorized Officer. The Authorized Officer may allow the Lessee to replace, repair, restore, or otherwise undertake necessary curative actions, to the satisfaction of the Authorized Officer, in order to mitigate damages in addition to or as an alternative to monetary indemnification.

- F. In the event of any breach of the lease by the Lessee, the Authorized Officer may, on reasonable notice, cure the breach for the account at the expense of the Lessee. If the Bureau of Land Management at any time pays any sum of money or does any act which requires payment of money, or incurs any expense, including reasonable attorney's fees, in instituting, prosecuting, and/or defending any action or proceeding to enforce the United States rights hereunder, the sum or sums so paid by the United States, with all interests, costs and damages will, at the election of the Bureau of Land Management, be deemed to be additional rental hereunder and will be due from the Lessee to the Bureau of Land Management on the first day of the month following such election.

V. Other Provisions

- A. Nondiscrimination. The Lessee **must** at all times operate the described property and its appurtenant areas and its buildings and facilities, whether or not on the property, in full compliance with Title VI of the Civil Rights Act of 1964 and all requirements imposed by or pursuant to the regulations issued thereunder by the Department of the Interior and in effect on the date this lease is granted to the end that no person in the United States will, on the grounds of race, sex, color, religion, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any of the programs or activities provided thereon.

B. Termination and Suspension.

1. **General.** For purposes of this lease, termination and suspension refer to the cessation of uses and privileges under the lease.

"Termination" refers to an action by the Authorized Officer to end the lease because of noncompliance with any of the prescribed terms, abandonment, or for reasons in the public interest. Termination also occurs when, by the terms of the lease, a fixed or agreed upon condition, event, or time occurs. For example, the lease terminates at expiration. Termination ends the Lessee's right to use the public land for communication purposes.

"Suspension" is a temporary action and the privileges may be restored upon the occurrence of prescribed actions or conditions.

2. This lease may be suspended or terminated upon breach of any of the terms or conditions herein or upon nonuse, or when in the public interest. Nonuse refers to a failure to operate consistently the facilities on the property for any period during the term in excess of 180 days. When suspended or terminated in the public interest, the Lessee will be compensated subject to the availability of appropriated funds. Compensation will be based upon the initial cost of improvements located on the lease, less depreciation as allocated over the life of the improvements as evidenced by the Lessee's Federal tax amortization schedules.
3. Except in emergencies, or in case of nonuse, the Authorized Officer will give the Lessee written notice of the grounds for termination or suspension and a reasonable time, not to exceed 90 days, to complete the corrective action. After the prescribed period, the Bureau of Land Management is entitled to such remedies as are provided herein.
4. Any discretionary decisions or determinations by the Authorized Officer on termination or suspension are subject to appeal in accordance with the regulation in Title 43, Code of Federal Regulations.

C. Restoration

1. In the event the Authorized Officer decides not to issue a new lease, or the Lessee does not desire a new lease, the Lessee **must**, prior to the termination of this lease, restore and stabilize the site to the satisfaction of the Authorized Officer.
2. In the event this lease is terminated for noncompliance, the Lessee **must** remove all structures and improvements within a reasonable period as determined by the Authorized Officer, except those owned by the United States, and **must** restore the site as nearly as reasonably possible to its original condition unless this requirement is otherwise waived in writing by the Authorized Officer.
3. If the Lessee fails to remove all structures or improvements within the prescribed period, they will become the property of the United States and may be sold, destroyed, or otherwise disposed of without any liability to the United States.

- D. Members of Congress. No member of or Delegate to Congress or Resident Commissioner may benefit from this lease either directly or indirectly, except when the lease provides a general benefit to a corporation.

- E. Reservations. This lease is granted subject to the following reservations by the United States:

1. The right to all natural resource products now or hereafter located on the property unless stated otherwise herein, and the right to obtain, utilize, or dispose of such resources insofar as the rights and possession of the Lessee are not unreasonably affected.
2. The right to modify the communications site plan as deemed necessary.
3. The right to enter upon the lease and inspect all facilities to assure compliance with the conditions of this lease.
4. The right of the United States to use or to authorize the use of the property for compatible uses, including the subsurface and air space.

In the event of any conflict between any of the preceding printed clauses or any provisions thereof and any of the following clauses or any provision thereof, the preceding printed clauses control.

User note: Additional conditions may be added as an exhibit to address special concerns.

(Continued on reverse)

ACCEPTED this _____ day of _____, 19____, I, the undersigned have read, understand and accept the terms and conditions of this lease.

(Lessee)

User Note: If a corporation is the Lessee, the title of the duly authorized official signing on behalf of the corporation should be added to the signature block.

IN WITNESS WHEREOF, the Bureau of Land Management, by its Authorized Officer, has executed this lease on the day and year first written above.

UNITED STATES OF AMERICA

(Signature of Authorized Officer)

(Title of Authorized Officer)

(Printed Name of Authorized Officer)

(Date)

PRINTING INSTRUCTIONS: Laser Printer: 12 pitch, portrait. Left Margin: 6. Do not PRINT/SAVE headers/footers or user notes.

FS-2700-4a (9/96)
OMB No. 0596-0082

THE UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

COMMUNICATIONS USE LEASE

(Lessee Name) of _____
(Billing Address - 1)

(Billing Address - 2) _____ (City) _____ (ST) _____ (Zip Code)

THIS LEASE, dated this _____ day of _____, 19____, by and between the UNITED STATES OF AMERICA, acting through the Forest Service, Department of Agriculture (hereinafter called the "United States" or "Forest Service"), as authorized by the Act of October 21, 1976, (90 Stat. 2743; 43 U.S.C. 1701, et seq.), and _____, its agents, successors, and assigns (hereinafter called the "Lessee").

The United States and the Lessee are jointly referred to herein as the "Parties." As used herein, the "Authorized Officer" refers to the Forest Service official having the delegated authority to execute and administer this lease. Generally, unless otherwise indicated, such authority may be exercised by the Forest Supervisor or District Ranger of the National Forest wherein the following described lands are located.

The United States, for and in consideration of the terms and conditions contained herein and the payment to the United States of a rental in advance by the Lessee, does hereby grant to the Lessee a lease for the following described lands in the County of _____, State of _____:

(Legal Description) (hereinafter called the "property"). The Lessee accepts this lease and possession of the property, subject to any valid existing rights, and agrees not to use the property, or any part thereof, except as a site for only the construction, operation, maintenance, and termination of a communications facility.

The location of the property is shown generally on the site plan dated _____ for the _____ Communications Site which is attached and made part hereof as Exhibit A.

The dated and initialled exhibit(s), attached hereto, are incorporated into and made a part of this instrument as fully and effectively as if they were set forth herein in their entirety.

The parties agree that this lease is made subject to the following terms and conditions.

I. TENURE, RENEWAL AND TRANSFERABILITY

A. This lease shall terminate at one minute after midnight on _____. Termination at the end of the lease term shall occur by operation of law and shall not require any additional notice or documentation by the Authorized Officer. This lease is not renewable; but the Lessee has the right to request a new lease pursuant to paragraph "C" below.

B. The Lessee shall undertake and pursue with due diligence construction and operation that is authorized by this lease. To the extent specified in Exhibit _____, operation shall commence on _____ (Date) _____. This lease shall terminate if operation does not commence by that date, unless the parties agree in writing, in advance, to an extension of the commencement date.

C. If the Lessee desires a new lease upon termination of this lease, the Lessee shall notify the Authorized Officer accordingly, in writing. The notice must be received by the Authorized Officer at least one year prior to the end of the lease term. The Authorized Officer will determine if the use should continue and, if it is to continue, if a new lease should be issued to the Lessee and under what conditions. The Authorized Officer shall require payment of any amounts owed the United States under any Forest Service authorization before issuance of another authorization.

D. This lease is assignable with prior written approval of the Authorized Officer, except when the rental has been waived in whole or part. Renting of space does not constitute an assignment under this clause.

II. RENTAL

A. The Lessee must pay in advance an annual rental determined by the Authorized Officer in accordance with law, regulation, and policy. The annual rental will be adjusted by the Authorized Officer to reflect changes in fair market value, annual adjustments using the Consumer Price Index-Urban (CPI-U), changes in tenant occupancy, or phase-in of rental, if applicable.

B. Rentals are due at the close of business on January 1 of each year for which a payment is due. Payments due the United States for this use shall be deposited at _____ in the form of a check, draft, or money order payable to Forest Service, USDA. If the due date for the rental or rental calculation statement falls on a non-work day, the charges shall not apply until the close of business on the next workday. This lease terminates if rent is not received by the Forest Service within 90 calendar days of the due date.

C. Pursuant to the Federal Claims Collection Act of 1966, as amended, 31 U.S.C. 3717, et seq, regulations at 7 CFR Part 3, Subpart B and 4 CFR Part 102, an interest charge shall be assessed on any amount due but not received by the due date. Interest shall accrue from the date the payment or financial statement was due. Administrative costs will also be assessed

in the event that two or more billings are required for delinquent accounts. In addition, an administrative penalty at a percentage rate prescribed by law or regulation will be assessed for failure to pay any portion of the debt that is more than 90 days past due. This paragraph shall survive the termination or revocation of this lease, regardless of cause.

D. Disputed rentals are due and payable by the due date. No appeal of rentals will be considered by the Forest Service without full payment of the disputed amount.

III. RESPONSIBILITIES OF THE LESSEE

A. The Lessee is authorized to rent space and provide other services to customers and/or tenants and shall charge each customer/tenant a reasonable rental without discrimination for the use and occupancy of the facilities and services provided. The Lessee shall impose no unreasonable restrictions nor any restriction restraining competition or trade practices. By October 15 of each year, the Lessee shall provide the Authorized Officer a certified statement listing all tenants and customers, by category of use in the facility on September 30th of that year.

B. All development, operation and maintenance of the authorized facility, improvements, and equipment located on the property shall be in accordance with stipulations in the communications site plan approved by the Authorized Officer. If required by the Authorized Officer, all plans for development, layout, construction, or alteration of improvements on the property as well as revisions of such plans, must be prepared by a licensed engineer, architect, and or landscape architect. Such plans must be approved in writing by the Authorized Officer before commencement of any work. After completion, as-built plans, maps, surveys, or other similar information will be provided to the Authorized Officer and appended to the communications site plan.

C. The Lessee will comply with applicable Federal, State, county, and municipal laws, regulations and standards for public health and safety, environmental protection, siting, construction, operation, and maintenance in exercising the rights granted by this lease. The obligations of the Lessee under this lease are not contingent upon any duty of the Authorized Officer, or other agent of the United States, to inspect the premises. A failure by the United States, or other governmental officials, to inspect is not a defense to noncompliance with any of the terms or conditions of this lease. Lessee waives all defenses of laches or estoppel against the United States. The Lessee shall at all times keep the title of the United States to the property free and clear of all liens and encumbrances.

D. Use of communications equipment is contingent upon the possession of a valid Federal Communications Commission (FCC) or Director of Telecommunications Management/Interdepartmental Radio Advisory Committee (DTM/IRAC) authorization, and the operation of the equipment is in strict compliance with applicable requirements of FCC or IRAC. A copy of each applicable license or authorization shall at all times be maintained by the Lessee for each transmitter being operated. The Lessee shall provide the

Authorized Officer, when requested, with current copies of all licenses for equipment in or on facilities covered by this lease.

E. The Lessee shall ensure that equipment within his or her facility (including tenant and customer equipment) operates in a manner which will not cause harmful interference with the operation of existing equipment on or adjacent to the communications site. If the Authorized Officer or authorized official of the Federal Communications Commission (FCC) determines that the Lessee's use interferes with existing equipment, the Lessee will promptly take the necessary steps to eliminate or reduce the harmful interference to the satisfaction of the Authorized Officer or FCC official.

F. When requested by the Authorized Officer, the Lessee will furnish technical information concerning the equipment located on the property.

IV. LIABILITIES

A. The Lessee assumes all risk of loss to the authorized improvements.

B. The Lessee shall comply with all applicable Federal, State, and local laws, regulations, and standards, including but not limited to, the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq., the Comprehensive Environmental Response, Control, and Liability Act, 42 U.S. C. 9601 et seq., and other relevant environmental laws, as well as public health and safety laws and other laws relating to the siting, construction, operation, and maintenance of any facility, improvement, or equipment on the property.

C. The Lessee shall indemnify, defend, and hold the United States harmless for any violations incurred under any such laws and regulations or for judgments, claims, or demands assessed against the United States in connection with the Lessee's use or occupancy of the property. The Lessee's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property in connection with the occupancy or use of the property during the term of this lease. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. This paragraph shall survive the termination or revocation of this lease, regardless of cause.

**!!USE CLAUSE C(1) AND DELETE CLAUSE "C" WHEN ISSUING THIS LEASE TO
FEDERAL AGENCIES!!**

C(1). The holder, as an agency of the United States, is limited by Federal law as to the assumption of liability for its acts or omissions. The holder does agree, within its legal limitations, and limitations of appropriations, to be responsible for all costs of damages and injury to persons, personal property, and land caused by its operations and activities under the terms of this lease. The holder further agrees, to the extent legally permissible, to use its appropriations and resources as required to pay any awards or claims, and to repair damages to the land within the authorized area. It is

the intent of this provision that the appropriations of the Forest Service be shielded from burdens, other than administrative costs, which may occur as a result of activities by the holder under the terms of this lease.

D. The Forest Service has no duty, either before or during the lease term, to inspect the property or to warn of hazards and, if the Forest Service inspects the property, it shall incur no additional duty nor any liability for hazards not identified or discovered through such inspections. This paragraph shall survive the termination or revocation of this lease, regardless of cause.

E. The Lessee has an affirmative duty to protect from damage the land, property, and interests of the United States.

User notes for optional clause E(1):

1. Use clause E(1) in conjunction with clause E in situations in which the Authorized Officer determines that the risk to public land, resources, or interest is greater than the Lessee's assets or ability to correct.

2. If Lessee is a State or political subdivision thereof and such entity has statutory or constitutional authorities limiting the amount of liability or indemnification payable, the Authorized Officer shall prepare a risk assessment to determine the United States potential for losses due to personal injury, loss of life, or property damage caused by the State's use or occupancy. If the Authorized Officer determines, through the risk assessment that the potential for injury, loss, or damage caused by the State's use or occupancy is in excess of the State's liability limitation, the State shall procure, as a requirement to be fulfilled before execution of this lease, insurance (see below), and name the United States, together with the State, as an insured on the policy(s), in the amount determined in the risk assessment that exceeds the State's liability limitation.

E(1). The Lessee shall maintain \$ _____ worth of insurance coverage, naming the United States additionally insured on the policies(s), to partially fund the indemnification obligations of the Lessee for any and all losses due to personal injury, loss of life, or property damage, including fire suppression and hazardous waste costs. The Lessee shall furnish proof of insurance (such as a surety bond, or certificate of insurance) to the Authorized Officer prior to execution of this lease and verify annually, and in writing, the insurance obligation to the Authorized Officer. The Authorized Officer may allow the Lessee to replace, repair, restore, or otherwise undertake necessary curative actions, to the satisfaction of the Authorized Officer, in order to mitigate damages in addition to or as an alternative to monetary indemnification.

F. In the event of any breach of the lease by the Lessee, the Authorized Officer may, on reasonable notice, cure the breach for the account at the expense of the Lessee. If the Forest Service at any time pays any sum of money or does any act which will require payment of money, or incurs any expense, including reasonable attorney's fees, in instituting, prosecuting,

and/or defending any action or proceeding to enforce the United States rights hereunder, the sum or sums so paid by the United States, with all interests, costs and damages shall, at the election of the Forest Service, be deemed to be additional rental hereunder and shall be due from the Lessee to the Forest Service on the first day of the month following such election.

V. OTHER PROVISIONS

A. Nondiscrimination. The Lessee shall at all times operate the described property and its appurtenant areas and its buildings and facilities, whether or not on the property, in full compliance with Title VI of the Civil Rights Act of 1964 and all requirements imposed by or pursuant to the regulations issued thereunder by the Department of Agriculture and in effect on the date this lease is granted to the end that no person in the United States shall, on the grounds of race, sex, color, religion, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any of the programs or activities provided thereon.

B. Revocation, Termination, and Suspension.

1. General. For purposes of this lease, termination, revocation, and suspension refer to the cessation of uses and privileges under the lease.

"Revocation" refers to an action by the Authorized Officer to end the lease because of noncompliance with any of the prescribed terms, abandonment, or for reasons in the public interest. Revocations are appealable.

"Termination" refers to the cessation of the lease under its own terms without the necessity for any decision or action by the Authorized Officer. Termination occurs automatically when, by the terms of the lease, a fixed or agreed upon condition, event, or time occurs. For example, the lease terminates at expiration. Terminations are not appealable.

"Suspension" refers to a revocation which is temporary and the privileges may be restored upon the occurrence of prescribed actions or conditions. Suspensions are appealable.

2. This lease may be suspended or revoked upon breach of any of the conditions herein or upon nonuse. Nonuse refers to a failure to operate the facilities on the property for a period of _____ years.

3. Except in emergencies, the Authorized Officer shall give the Lessee written notice of the grounds for revocation or suspension and a reasonable time, not to exceed 90 days, to complete the corrective action. After 90 days, the Forest Service is entitled to such remedies as provided herein.

4. This lease may be revoked at the discretion of the Forest Service when in the public interest. When revoked in the public interest, the Lessee shall be compensated subject to the availability of appropriated funds. Compensation shall be based upon the initial cost of improvements located on the lease, less depreciation as allocated over

the life of the improvements as declared by the Lessee's Federal tax amortization schedules.

5. Any discretionary decisions or determinations by the Authorized Officer on revocation or suspension are subject to the appeal regulations at 36 CFR 251, Subpart C, or revisions thereto.

6. In the event the Authorized Officer decides not to issue a new lease, or the Lessee does not desire a new lease, the Authorized Officer and the Lessee shall, within six months prior to the termination date of this lease, agree upon a mitigation plan to restore and stabilize the site.

In the event this lease is revoked for noncompliance, the Lessee shall remove all structures and improvements within _____ days, except those owned by the United States, and shall restore the site as nearly as reasonably possible to its original condition unless this requirement is otherwise waived in writing by the Authorized Officer.

If the Lessee fails to remove all structures or improvements within the prescribed period, they shall become the property of the United States and may be sold, destroyed, or otherwise disposed of without any liability to the United States.

C. Members of Congress. No member of or Delegate to Congress or Resident Commissioner shall benefit from this lease either directly or indirectly, except when the lease provides a general benefit to a corporation.

D. Reservations. This lease is granted subject to the following reservations by the United States:

1. The right to all natural resource products now or hereafter located on the property unless stated otherwise, and the right to utilize or dispose of such resources insofar as the rights of the Lessee are not unreasonably affected.

2. The right to modify the communications site plan as deemed necessary.

3. The right to enter upon the lease and inspect all facilities to assure compliance with the conditions of this lease.

4. The right of the United States to require common use of the property, and the right to authorize use of the property for compatible uses, including the subsurface and air space.

In the event of any conflict between any of the preceding printed clauses or any provisions thereof and any of the following clauses or any provision thereof, the preceding printed clauses shall control.

User Note: Additional conditions may be added here to address local concerns.

ACCEPTED this _____ day of _____, 19 _____, I, the undersigned have read, understand and accept the terms and conditions of this lease.

Lessee

IN WITNESS WHEREOF, the Forest Service, by its Authorized Officer, has executed this lease on the day and year first written above.

UNITED STATES OF AMERICA

Authorized Officer (Title)
Forest Service
Department of Agriculture

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082.

This information is needed by the Forest Service to evaluate requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the Secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the Term Permit Act, National Forest Ski Area Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act, Act of September 3, 1954, Wilderness Act, National Forest Roads and Trails Act, Act of November 16, 1973, Archeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations for the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Public reporting burden for this collection of information, if requested, is estimated to average 1 hour per response for annual financial information; average 1 hour per response to prepare or update operation and/or maintenance plan; average 1 hour per response for inspection reports; and an average of 1 hour for each request that may include such things as reports, logs, facility and user information, sublease information, and other similar miscellaneous information requests. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, Room 404-W, Washington D.C. 20250; and to the Office of Management and Budget, Paperwork Reduction Project (OMB # 0596-0082), Washington, D.C. 20503.

